PRE ALGEBRA – PA CORE – COURSE 2

STUDENT WORKBOOK

Unit 3 EXPRESSIONS / EQUATIONS

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After

3	**Expressions and Equations**	PURPLE	GREEN	RED
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STUDY ISLAND TOPICS

Linear Expressions
Multi Step Real World Problems
Symbolize and Solve Equations
Symbolize and Solve Inequalities

Name: _____ Period ____

NAME _____ DATE _____ PERIOD _____

Lesson 1 Skills Practice

Algebraic Expressions

Evaluate each expression if $w = 2$, $x = 3$, $y = 5$, and $z = 6$.

1. $2w$

2. $y + 5$

3. $9 - z$

4. $x + w$

5. $3 + 4z$

6. $6y - 5$

7. y^2

8. $y - x$

9. $\frac{z}{2}$

Evaluate each expression if $m = 3$, $n = 7$, and $p = 9$.

10. $m + n$

11. $12 - 3m$

12. $5p$

13. $3.3p$

14. $3.3p + 2$

15. $2p + 3.3$

16. $20 + 2n$

17. $20 - 2n$

18. $\frac{n}{7}$

19. n^2

20. $6m^2$

21. $\frac{p^2}{3}$

22. $1.1 + n$

23. $p - 8.1$

24. $3.6m$

25. $3n - 2m$

26. $3m - n$

27. $2.1n + p$

28. $\frac{m^2}{p}$

29. $\frac{2.5m + 2.5}{5}$

30. $\frac{(n + 2)^2}{3}$

NAME _____ DATE _____ PERIOD _____

Lesson 1 Problem-Solving Practice

Algebraic Expressions

1. FIELD TRIP The seventh grade math classes are going on a field trip. The field trip will cost \$7 per student. Write an expression to find the cost of the field trip for s students. What is the total cost if 26 students go on the trip?	**2. SOCCER** Jason earns \$20 per game as a referee in youth soccer games. Write an expression to find how much money Jason will earn for refereeing any number of games. Let n represent the number of games Jason has refereed. How much will he earn for refereeing 6 games?
3. PROFIT The expressions $c - e$, where c stands for the money collected and e stands for the expenses, is used to find the profit from a basketball concession. If \$500 was collected and expenses were \$150, find the profit for the concession.	**4. SAVINGS** Kata has a savings account that contains \$230. She decides to deposit \$5 each month from her monthly earnings for baby-sitting after school. Write an expression to find how much money Kata will have in her savings account after x months. Let x represent the number of months. Then find out how much she will have in her account after 1 year.
5. MONEY Mr. Wilson has \$2,500 in his savings account and m dollars in his checking account. Write an expression that describes the total amount that he has in both accounts.	**6. ANIMALS** Write an expression to represent the total number of legs on h horses and c chickens. How many legs are there in 5 horses and 6 chickens?
7. T-SHIRTS The band wants to order T-shirts. The T-shirts cost \$15 each plus a shipping fee of \$10. Write an expression to find the total cost of c T-shirts.	**8. TEMPERATURE** The expression $\frac{9}{5}C + 32$, where C stands for temperature in degrees Celsius, is used to convert Celsius to Fahrenheit. If the temperature is 20 degrees Celsius, find the temperature in degrees Fahrenheit.

 Name_____

Evaluating Variable Expressions

Date_____ Period____

Evaluate each using the values given.

1) $n^2 - m$; use $m = 7$, and $n = 8$

2) $8(x - y)$; use $x = 5$, and $y = 2$

3) $yx \div 2$; use $x = 7$, and $y = 2$

4) $m - n \div 4$; use $m = 5$, and $n = 8$

5) $x - y + 6$; use $x = 6$, and $y = 1$

6) $z + x^3$; use $x = 1$, and $z = 19$

7) $y + yx$; use $x = 15$, and $y = 8$

8) $q \div 6 + p$; use $p = 10$, and $q = 12$

9) $x + 8 - y$; use $x = 20$, and $y = 17$

10) $15 - (m + p)$; use $m = 3$, and $p = 10$

11) $10 - x + y \div 2$; use $x = 5$, and $y = 2$

12) $p - 2 + qp$; use $p = 7$, and $q = 4$

13) $zy + 4y$; use $y = 5$, and $z = 2$

14) $b(a + b) + a$; use $a = 9$, and $b = 4$

15) $p^2 \div 4 - m$; use $m = 3$, and $p = 4$

16) $x(y \div 3)^2$; use $x = 4$, and $y = 9$

17) $4 + m + n - m$; use $m = 4$, and $n = 9$

18) $qp + q - p$; use $p = 7$, and $q = 3$

19) $mn \div 6 + 10$; use $m = 7$, and $n = 6$

20) $h + j(j - h)$; use $h = 2$, and $j = 6$

21) $(b - 1)^2 + a^2$; use $a = 6$, and $b = 1$

22) $y(x - (9 - 4y))$; use $x = 4$, and $y = 2$

23) $x - (x - (x - y^3))$; use $x = 9$, and $y = 1$

24) $j(h - 9)^3 + 2$; use $h = 9$, and $j = 8$

NAME _____ DATE _____ PERIOD _____

Lesson 2 Skills Practice

Sequences

Describe the relationship between the terms in each arithmetic sequence.

1. 3, 6, 9, 12…

2. 1, 3, 5, 7, …

3. 1, 2, 3, 4, …

4. 0, 7, 14, 21, …

5. 2, 5, 8, 11, …

6. 5, 10, 15, 20, …

7. 0.3, 0.6, 0.9, 1.2, …

8. 1, 10, 19, 28, …

9. 6, 18, 24, 30, …

10. 0.5, 2.5, 4.5, 6.5, …

11. 3, 7, 11, 15, …

12. 0, 4.5, 9, 13.5, …

13. 11, 22, 33, 44, …

14. 16, 21, 26, 31, …

Give the next three terms in each sequence.

15. 3, 6, 9, 12, …

16. 18, 21, 24, 27, …

17. 7, 10, 13, 16, …

18. 4, 8, 12, 16, …

19. 0, 7, 14, 21, …

20. 7, 12, 17, 22, …

21. 5, 7, 9, 11, …

22. 5, 15, 25, 35, …

23. 21, 42, 63, 84, …

24. 1.1, 2.2, 3.3, 4.4, …

25. 0.5, 1.0, 1.5, 2.0, …

26. 1.7, 1.9, 2.1, 2.3, …

27. 0.5, 1.5, 2.5, 3.5, …

28. 0.1, 0.2, 0.3, 0.4, …

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Lesson 2 Problem-Solving Practice

Sequences

1. NUMBERS The multiples of two form a sequence as follows: 2, 4, 6, 8, 10, 12, 14, 16, …. Describe the sequence you see. What about the multiples of three? Four? Five?	**2. OLYMPICS** The summer Olympics occur every four years. If the last summer Olympics happened in 2008, when are the next three times that it will occur? Describe the sequence the Olympic years form.
3. BABY-SITTING Tonya charges $3.50 per hour to baby-sit. The sequence $3.50, $7.00, $10.50, $14.00, … represents how much she charges for each subsequent hour. For example, $10.50 is the third term that represents how much she charges for 3 hours. What are the next three terms in the sequence? How much does she charge for 7 hours of baby-sitting?	**4. JOGGING** Luther starts jogging 8 minutes on the first day and then increases his time by 4 minutes each day. How many minutes will he jog the fifth day?
5. BACTERIA Three bacteria are in a dish. Each hour the number of bacteria increases by four. If at the end of the first hour there are 12 bacteria, how many bacteria are there at the end of the next three hours?	**6. ENROLLMENT** The enrollment at Grove Middle School is expected to increase by 40 students each year for the next 5 years. If their current enrollment is 600 students, find their enrollment after each of the next 5 years.
7. SALARY Mrs. Malone's current salary is $15,000. She expects it to increase $1,000 per year. Write the first 6 terms of a sequence that represents her salary. The first term should be her current salary. What does the sixth term represent?	**8. FIBONACCI** The Fibonacci sequence is named after Leonardo Fibonacci who first explored it. Look at the Fibonacci sequence below and describe its pattern. 1, 1, 2, 3, 5, 8, 13, 21, 34, …

NAME _____ DATE _____ PERIOD _____

Lesson 3 Skills Practice

Properties of Operations

Name the property shown by each statement.

1. $9 \cdot 6 = 6 \cdot 9$

2. $m + 0 = m$

3. $14 \cdot 1 = 14$

4. $2 + (8 + 3) = (2 + 8) + 3$

5. $x + y = y + x$

6. $m + 2) + n = n + (m + 2)$

State whether the following conjectures are *true* or *false*. If *false*, provide a counterexample.

7. The sum of an even whole number and an odd whole number is always odd.

8. Division of whole numbers is always commutative.

Simplify each expression. Justify each step.

9. $5 + (b + 2)$

10. $8(2q)$

11. **RAIN** Piper recorded the amount of rain that fell for four nights in the table below. Use mental math to find the total amount of rain. Explain your reasoning.

Day	Monday	Tuesday	Wednesday	Thursday
Rain (in.)	2.6	1.5	1.4	2.5

NAME _____ DATE _____ PERIOD _____

Lesson 3 Problem-Solving Practice

Properties of Operations

1. PROPERTY Alana's house sits on a rectangular lot with dimensions 62.4 feet by 108.6 feet. Use mental math to find the perimeter.

2. SHOPPING Sera went to the mall and made four purchases. She spent \$2.85, \$5.11, \$7.89, and \$4.15. Use mental math to determine how much money Sera spent at the mall.

3. VIDEO GAME Porsche bought a new video game. The first time she played, it took her 24 minutes to reach Level 2, the second time it took 18 minutes, the third time it took 16 minutes, and the fourth time it took 12 minutes. Use mental math to determine how many minutes she spent at Level 1 while playing these four games.

4. FLOWERS Bethany placed a bouquet of roses in a vase full of water. Each day she recorded how much water had evaporated from the vase before refilling it. The results are shown in the table below. Over the course of five days how much water had evaporated? Use mental math to find your answer.

Day	1	2	3	4	5
Evaporation (in.)	0.8	0.2	1.1	0.9	1

5. RECORDS Olympia listened to some old records. The first song lasted 2 minutes and 12 seconds, the second lasted 2 minutes and 16 seconds, the third 2 minutes and 18 seconds, and the fourth 3 minutes and 4 seconds. Use mental math to determine the total playing time for all four records.

6. DISTANCE Anza gave Angela directions to her house from school. Angela was to head south for 2.2 miles, then west for 3.5 miles, then south again for 5.8 miles. Use mental math to determine how far school is from Anza's house. Explain your reasoning.

7. GROCERIES Tayshawn saw the following sign in a butcher shop. If he buys one of each item, how much will he spend? Use mental math to help find your answer. Explain your reasoning.

SALE
Roast - \$7.19
Bread - \$1.56
Milk - \$2.81
Yogurt - \$0.44

 Name_____

Order of Operations

Date_____ Period____

Evaluate each expression.

1) $(30 - 3) \div 3$

2) $(21 - 5) \div 8$

3) $1 + 7^2$

4) $5 \times 4 - 8$

5) $8 + 6 \times 9$

6) $3 + 17 \times 5$

7) $7 + 12 \times 11$

8) $15 + 40 \div 20$

9) $20 + 16 - 15$

10) $19 - 15 - 3$

11) $9 \times (3 + 3) \div 6$

12) $(9 + 18 - 3) \div 8$

13) $9 + 6 \div (8 - 2)$

14) $4(4 \div 2 + 4)$

15) $6 + (5 + 8) \times 4$

16) $6 \times 6 - (7 + 5)$

17) $(9 \times 2) \div (2 + 1)$

18) $2 - (4 + 3 - 6)$

19) $7 \times 7 - (8 - 2)$

20) $9 - 7 - 6 \div 6$

21) $(4 - 1 + 8 \div 8) \times 5$

22) $(10 \times 2) \div (1 + 1)$

23) $7 \times 9 - 7 - 3 \times 5$

24) $8 - 1 - (18 - 2) \div 8$

 Name_____

Order of Operations

Date_____ Period____

Evaluate each expression.

1) $3(6+7)$

2) $5 \times 3 \times 2$

3) $72 \div 9 + 7$

4) $2 + 7 \times 5$

5) $9 + 8 - 7$

6) $9 - 32 \div 4$

7) $5(10-1)$

8) $48 \div (4+4)$

9) $20 \div (4-(10-8))$

10) $40 \div 4 - (5-3)$

11) $9 + 9 + 6 - 5$

12) $(5+16) \div 7 - 2$

13) $7 + 10 \times 5 + 10$

14) $(6+25-7) \div 6$

15) $(6-4)\times 49\div 7$

16) $(7\times 5)\div 5$

17) $\dfrac{43-1}{4+2}+10$

18) $(8+5)\times\dfrac{35}{5}+6$

19) $\dfrac{27}{2+3+4}+3$

20) $\dfrac{45}{8(5-4)-3}$

21) $8\times\dfrac{15}{5}-(5+9)$

22) $2\times 7-\dfrac{10}{9-4}$

23) $(10+2-2)\times 6-1$

24) $\dfrac{49}{7}\times\dfrac{60}{2\times 5}$

25) $(2+6\times 2+2-4)\times 2$

26) $\dfrac{8}{5-1}\times(3+6)\times 3$

NAME _____ DATE _____ PERIOD _____

Lesson 4 Skills Practice

The Distributive Property

Use the Distributive Property to evaluate each expression.

1. $3(2 + 8)$

2. $(-3 + 4)2$

3. $-5(4 - 2)$

4. $(12 + 13)(-2)$

5. $8(10 - 4)$

6. $(-4 + -7)(-3)$

7. $(-7 + 3)4$

8. $-1(18 - 11)$

Use the Distributive Property to rewrite each expression.

9. $6(t + 2)$

10. $-5(4 + x)$

11. $(5 + v)(-3)$

12. $(w - 2)4$

13. $-7(8n - m)$

14. $(6 + d)(-6)$

15. $(4c + 2d)(-2)$

16. $-2(3f - 5g)$

17. **TRAIN RIDE** Mr. and Mrs. Caputo are taking their family into the city on the train. The cost per person is \$5.80. If there are 4 members in their family, how much does the train trip cost? Justify your answer by using the Distributive Property.

18. **CAMPING** Chantee went camping over the weekend. The cost for the site was \$16.95 a night for three nights. How much did it cost her to camp? Justify your answer by using the Distributive Property.

NAME _____ DATE _____ PERIOD _____

Lesson 4 Problem-Solving Practice

The Distributive Property

1. SCHOOL PLAY Marika and her three friends attended the school play. Tickets cost $5.75 each, and Marika paid for everyone. Find the total cost of the tickets. Justify your answer by using the Distributive Property.

2. LUNCH Althea buys a carton of milk each day at school. The milk costs $0.90. How much does she spend on milk during a typical 5-day week? Justify your answer by using the Distributive Property.

3. BOOKSTORE The sign below indicates the cost for several items at Ting's middle school bookstore. If Ting wants to buy two of each item, how much will it cost? Justify your answer by using the Distributive Property.

Item	Price ($)
Pencil	1.00
Pen	2.50
Notebook	3.00

4. HOCKEY The table shows the price of a ticket and food items at a hockey game.

a. Suppose Coleman and two of his friends go to the game. Write an expression that could be used to find the total cost for them to go to the game and buy one of each item.

b. What is the total cost for all three people?

Item	Cost ($)
Ticket	7.00
Hot dog	3.50
Fries	2.25
Candy bar	1.50

5. PICTURES Belinda wants to buy 5 pictures to hang in her family room. If each picture costs $30.90, how much will it cost her to buy all five? Justify your answer by using the Distributive Property.

6. FLASH DRIVES Mr. Kaplan is ordering 30 flash drives for the students in his class. If each one costs $11.95, how much will he pay? Justify your answer by using the Distributive Property.

7. FORMULA Mr. and Mrs. Newby are buying baby formula. Each case of formula costs $59.89. If they want to purchase four cases, how much will they pay? Justify your answer by using the Distributive Property.

8. TIRES Mao needs four new tires for his car. Each tire costs $88.70. How much will it cost him to buy the tires? Justify your answer by using the Distributive Property.

 Name_____

The Distributive Property

Date_____ Period____

Simplify each expression.

1) $6(1 - 5m)$

2) $-2(1 - 5v)$

3) $3(4 + 3r)$

4) $3(6r + 8)$

5) $4(8n + 2)$

6) $-(-2 - n)$

7) $-6(7k + 11)$

8) $-3(7n + 1)$

9) $-6(1 + 11b)$

10) $-10(a - 5)$

11) $-3(1 + 2v)$

12) $-4(3x + 2)$

13) $(3 - 7k) \cdot -2$

14) $-20(8x + 20)$

15) $(7 + 19b) \cdot -15$

16) $(x + 1) \cdot 14$

 Name_____

Using the Distributive Property

Date_____ Period____

Simplify each expression.

1) $-6(a + 8)$

2) $4(1 + 9x)$

3) $6(-5n + 7)$

4) $(9m + 10) \cdot 2$

5) $(-4 - 3n) \cdot -8$

6) $8(-b - 4)$

7) $(1 - 7n) \cdot 5$

8) $-6(x + 4)$

9) $5(3m - 6)$

10) $(-6p + 7) \cdot -4$

11) $5(b - 1)$

12) $(x + 9) \cdot 5$

13) $-4(-8x - 8)$

14) $-6(7 + x)$

15) $-3(x - 5)$

16) $-5(10x + 1)$

17) $(1 + 2v) \cdot 5$

18) $-8(1 - 5x)$

19) $-7(5k - 4)$

20) $-5(7a - 6)$

21) $5(n + 6)$

22) $4(3r - 8)$

23) $3(5 + 5x)$

24) $(1 + 9x) \cdot -10$

NAME _____ DATE _____ PERIOD _____

Lesson 5 Skills Practice

Simplify Algebraic Expressions

Identify the terms, like terms, coefficients, and constants in each expression.

1. $4e + 7e + 5$

2. $5a + 2 - 7$

3. $-3h - 2h + 6h + 9$

4. $4 - 4y + y - 3$

5. $7 - 5y + 2 + 1$

6. $2m + 3m - m$

7. $9k + 7 - k + 4$

8. $-8p + 6p - 2$

Write each expression in simplest form.

9. $3t + 6t$

10. $4r + r$

11. $7f - 2f$

12. $9a - 8a$

13. $5c + 8c$

14. $2g - 5g$

15. $8k + 3 + 4k$

16. $7m - 5m - 6$

17. $9 - 6x + 5$

18. $7p - 1 - 9p + 5$

19. $-b - 3b + 8b + 4$

20. $5h - 6 - 8 + 7h$

21. $8b + 6 - 8b + 1$

22. $t - 5 - 2t + 5$

23. $4w + 5w + w$

24. $6m - 7 + 2m + 7$

25. $5f - 7f + f$

26. $12y - 8 + 4y + y$

Write an expression in simplest form that represents the total amount in each situation.

27. **RUNNING** You run m miles on Friday, the same amount on Saturday, and 4 miles on Sunday.

28. **READING** Hendrick read b books in January, twice that amount in February, and 1 book in March.

NAME _____ DATE _____ PERIOD _____

Lesson 5 Problem-Solving Practice

Simplify Algebraic Expressions

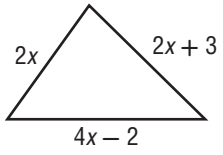
1. GAMES At the Beltway Outlet store, you buy x computer games for \$13 each and a magazine for \$4. Write an expression in simplest form that represents the total amount of money you spend.

2. TENNIS Two weeks ago, Star bought 3 cans of tennis balls. Last week, she bought 4 cans of tennis balls. This week, she bought 2 cans of tennis balls. The tennis balls cost d dollars per can. Write an expression in simplest form that represents the total amount that Star spent.

3. AMUSEMENT PARKS Sari and her friends played miniature golf. There were p people in the group. Each person paid \$5 for a round of golf and together they spent \$9 on snacks. Write an expression in simplest form that represents the total amount that Sari and her friends spent.

4. BICYCLING The bicycle path at the park is a loop that covers a distance of m miles. Dot biked 2 loops each on Monday and Wednesday and 3 loops on Friday. On Sunday, Dot biked 10 miles. Write an expression in simplest form that represents the total distance that Dot biked this week.

5. GEOMETRY Write an expression in simplest form for the perimeter of the triangle below.



6. SIBLINGS Mala is y years old. Her sister is 4 years older than Mala. Write an expression in simplest form that represents the sum of the ages of the sisters.

 Name_____

Combining Like Terms

Date_____ Period____

Simplify each expression.

1) $-6k + 7k$

2) $12r - 8 - 12$

3) $n - 10 + 9n - 3$

4) $-4x - 10x$

5) $-r - 10r$

6) $-2x + 11 + 6x$

7) $11r - 12r$

8) $-v + 12v$

9) $-8x - 11x$

10) $4p + 2p$

11) $5n + 11n$

12) $n + 4 - 9 - 5n$

13) $12r + 5 + 3r - 5$

14) $-5 + 9n + 6$

15) $n - 4 - 9$

16) $4n - n$

17) $-3x - 9 + 15x$

18) $-9k + 8k$

19) $-16n - 14n$

20) $15n - 19n$

21) $-4 + 7(1 - 3m)$

22) $-5n + 3(6 + 7n)$

23) $-2n - (9 - 10n)$

24) $10 - 5(9n - 9)$

25) $9a + 10(6a - 1)$

26) $-9(6m - 3) + 6(1 + 4m)$

27) $-10(1 - 9x) + 6(x - 10)$

28) $5(-2n + 4) + 2(n + 3)$

29) $-3(10b + 10) + 5(b + 2)$

30) $-7(n + 3) - 8(1 + 8n)$

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Simplifying Variable Expressions

Date_____ Period____

Simplify each expression.

1) $-3p + 6p$

2) $b - 3 + 6 - 2b$

3) $7x - x$

4) $7p - 10p$

5) $-10v + 6v$

6) $-9r + 10r$

7) $9 + 5r - 9r$

8) $1 - 3v + 10$

9) $5n + 9n$

10) $4b + 6 - 4$

11) $35n - 1 + 46$

12) $-33v - 49v$

13) $30n + 8n$

14) $7x + 31x$

15) $10x + 36 - 38x - 47$

16) $-2(7 - n) + 4$

17) $-8(-5b + 7) + 5b$

18) $-4p - (1 - 6p)$

19) $4 - 5(-4n + 3)$

20) $-7(k - 8) + 2k$

21) $1 + 7(1 - 3b)$

22) $3 - 8(7 - 5n)$

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Lesson 6 Skills Practice

Add Linear Expressions

Add. Use models if needed.

1. $(5x + 7) + (x + 2)$

2. $(-6x + 3) + (x - 7)$

3. $(-x + 12) + (-4x + 2)$

4. $(-5x + 3) + (-7x - 1)$

5. $(-x + 3) + (4x - 10)$

6. $(5x + 4) + (-8x - 2)$

7. $(-7x + 1) + (4x - 5)$

8. $(6x - 2) + (-x + 5)$

9. $(-9x + 1) + (-7x + 8)$

10. $(-3x - 9) + (4x + 8)$

11. $(-9x - 12) + (x - 8)$

12. $(14x + 7) + (-3x + 2)$

13. $(2x - 1) + (-3x + 7)$

14. $(-5x + 4) + (-9x - 2)$

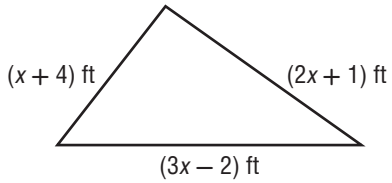
15. $(11x + 2) + (-8x - 2)$

16. $(-9x - 10) + (-5x - 4)$

17. Find the sum of $(10x + 3)$ and $(-4x - 2)$.

18. Find the sum of $(x + 3)$ and $(-x - 4)$.

19. **GEOMETRY** Write and simplify an expression to represent the perimeter of the triangle shown. Then find the value of x if the perimeter is 45 feet.



NAME _____ DATE _____ PERIOD _____

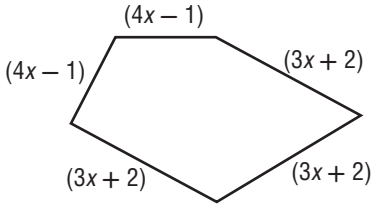
Lesson 6 Problem-Solving Practice

Add Linear Expressions

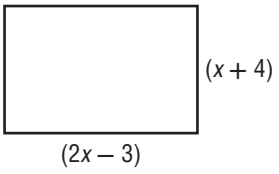
1. SWIMMING The table gives the number of laps Pragitha swam each week. Write an expression for the total number of laps she swam all four weeks.

Week	1	2	3	4
Laps	$x + 2$	$3x$	$2x + 1$	$4x - 6$

2. GEOMETRY Write an expression for the perimeter of this pentagon. If the perimeter is 157 units, find x.



3. BEDROOM Write an expression for the perimeter of the bedroom shown below.



4. HOCKEY The table shows the number of goals scored during each game. Write an expression for the total number of goals scored in these 3 games.

Game	1	2	3
Goals	$2x$	$x + 2$	$3x - 1$

5. FLIGHT An airline charges $\$(22x + 20)$ for a ticket, $\$(x + 1)$ to check a bag, $\$2x$ for food, and $\$(15x - 16)$ to upgrade to first class. Write an expression to represent the total cost of flying first class, checking a bag, and buying food on the plane.

6. FOOD Loy paid $\$(4x + 7)$ for a beef roast and $\$(2x - 5)$ for five pounds of potatoes. Write an expression for the total amount he spent on food.

NAME _____ DATE _____ PERIOD _____

Lesson 7 Skills Practice

Subtract Linear Expressions

Subtract. Use models if needed.

1. $(5x + 7) - (x + 2)$

2. $(2x - 6) - (x - 7)$

3. $(-x + 12) - (-4x + 2)$

4. $(-5x + 3) - (-7x - 1)$

5. $(-x + 3) - (4x - 10)$

6. $(5x + 4) - (-8x - 2)$

7. $(-7x + 1) - (4x - 5)$

8. $(6x - 2) - (-x + 5)$

9. $(-9x + 1) - (-7x + 8)$

10. $(-3x - 9) - (4x + 8)$

11. $(-9x - 12) - (x - 8)$

12. $(14x + 7) - (-3x + 2)$

13. $(5x - 1) - (-3x + 7)$

14. $(-5x + 4) - (-9x - 2)$

15. $(11x + 2) - (-8x - 2)$

16. $(-9x - 10) - (-5x - 4)$

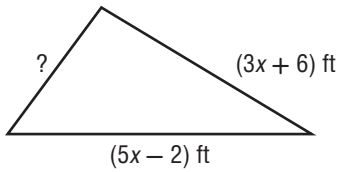
17. $(x - 2) - (x - 6)$

18. $(-6x + 1) - (-3x + 1)$

19. $(2x + 4) - (5x - 2)$

20. $(-12x - 6) - (-4x + 3)$

21. **GEOMETRY** The perimeter of the triangle shown is $(10x + 1)$ feet. Find the length of the missing side.



NAME _____ DATE _____ PERIOD _____

Lesson 7 Problem-Solving Practice

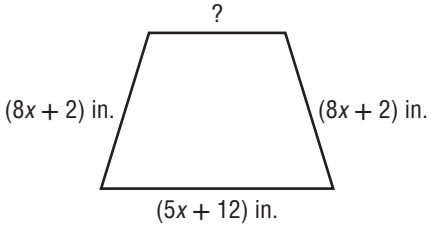
Subtract Linear Expressions

1. GASOLINE The table gives the cost of a gallon of gasoline at two stations. How much more does gasoline cost at Gas For Less than at Cut-Rate?

Cut-Rate	$-2x + 3.5$
Gas for Less	$x - 1.2$

2. GEOMETRY What is the difference in the areas of the polygons shown?

3. PLACEMATS Find the missing side of the placemat shown if the perimeter is $28x + 11$ inches.



4. SHOES Uthara has $6x - 7$ pairs of shoes while China has $2x + 3$ pairs of shoes. How many more pairs of shoes does Uthara have than China?

5. INSECTS A grasshopper has a length of $(5x - 2)$ inches. A spider has a length of $(2x - 1)$ inches. How much longer is the grasshopper?

6. PANTHERS Two Florida panthers were weighed. One weighs $6x + 21$ pounds and the two together weigh $14x + 11$ pounds. How much does the other panther weigh alone?

NAME _____ DATE _____ PERIOD _____

Lesson 8 Skills Practice

Factor Linear Expressions

Factor each expression. If the expression cannot be factored, write *cannot be factored.*

1. $17x + 34$

2. $10x + 25$

3. $30x + 18$

4. $45x - 18$

5. $38x - 12$

6. $28x + 15$

7. $3x - 27$

8. $6x + 24$

9. $26x - 5$

10. $48x + 56$

11. $15x - 14$

12. $20x - 100$

13. $7x + 35$

14. $7x + 17$

15. $9x - 63$

16. $39x + 13$

17. $8x + 15$

18. $18x - 12$

19. $24x + 48$

20. $45x - 81$

21. The area of a rectangular sandbox is $(5x + 40)$ feet. Factor $5x + 40$ to find possible dimensions of the sandbox.

NAME _____ DATE _____ PERIOD _____

Lesson 8 Problem-Solving Practice

Factor Linear Expressions

1. MEASUREMENT A sidewalk has an area that can be represented by the expression $(8x + 24)$ feet. Factor the expression $8x + 24$.

2. RENTAL The cost of renting a speedboat can be represented by the expression $50x + 250$, where x is the number of hours it is rented. Factor the expression $50x + 250$.

3. GEOMETRY The rectangle shown below has an area of $(28x + 49)$ inches. Factor the expression $28x + 49$.

4. CONCERT Four friends went to a concert and paid \$12 total for parking and \$$x$ per ticket. The expression $\$4x + \$12$ represents the total cost paid of all four friends. Factor $4x + 12$.

5. FINANCIAL LITERACY Marisa has \$40 in her savings account and plans to save \$x each month for 5 months. The expression \$5x + \$40 represents the total amount in the account after 5 months. Factor the expression 5x + 40.

6. FRAMING A square picture frame has a perimeter of $(20x + 32)$ inches. What is the length of one side of the picture frame?

NAME _____ DATE _____ PERIOD _____

Lesson 1 Skills Practice

Solve One-Step Addition and Subtraction Equations

Solve each equation. Check your solution.

1. $x + 2 = 8$

2. $y + 7 = 9$

3. $a + 5 = 12$

4. $16 = n + 6$

5. $q + 10 = 22$

6. $m + 9 = 17$

7. $b - 4 = 9$

8. $8 = c - 4$

9. $11 = t - 7$

10. $d - 10 = 8$

11. $x - 11 = 9$

12. $2 = z - 14$

13. $72 = 24 + w$

14. $86 + y = 99$

15. $6 + y = -8$

16. $-5 = m + 11$

17. $n + 3.5 = 6.7$

18. $x + 1.6 = 0.8$

19. $98 = t - 18$

20. $12 = g - 56$

21. $x - 18 = -2$

22. $p - 11 = -5$

23. $a - 1.5 = 4.2$

24. $7.4 = n - 2.6$

NAME _____ DATE _____ PERIOD _____

Lesson 1 Problem-Solving Practice

Solve One-Step Addition and Subtraction Equations

ANIMALS For Exercises 1–4, use the table.

The average lifespans of several different types of animals are shown in the table.

Average Lifespans of Animals			
Animal	**Lifespan (yr)**	**Animal**	**Lifespan (yr)**
Black bear	18	Guinea pig	4
Dog	12	Puma	?
Giraffe	10	Tiger	16
Gray squirrel	10	Zebra	?

1. The lifespan of a black bear is 3 years longer than the lifespan of a zebra. Write an addition equation that you could use to find the lifespan of a zebra.

2. Solve the equation you wrote in Exercise 1. What is the lifespan of a zebra?

3. The lifespan of a guinea pig is 8 years shorter than the lifespan of a puma. Write a subtraction equation that you could use to find the lifespan of a puma.

4. Solve the equation you wrote in Exercise 3. What is the lifespan of a puma?

5. TECHNOLOGY A survey of teens showed that teens in Pittsburgh aged 12–17 spend 15.8 hours per week online. Teens in Miami/Ft. Lauderdale spend 14.2 hours per week online. Write and solve an addition equation to find the difference in time spent online by teens in these cities.

6. SPORTS Annika Sorenstam won the 2006 MasterCard Classic with a final score of 8 under par, or −8. Her scores for the first two of the three rounds were −5 and −1. What was Ms. Sorenstam's score for the third round?

NAME _____ DATE _____ PERIOD _____

Lesson 2 Skills Practice

Multiplication and Division Equations

Solve each equation. Check your solution.

1. $7a = 56$

2. $-5b = -20$

3. $14 = 14c$

4. $\frac{e}{-9} = -6$

5. $\frac{k}{12} = 2$

6. $\frac{m}{6} = -10$

7. $66 = -11y$

8. $\frac{x}{19} = 4$

9. $-15 = \frac{z}{-8}$

10. $-3z = 93$

11. $5 = \frac{g}{4}$

12. $\frac{a}{3} = -12$

13. $-8 = \frac{t}{9}$

14. $3c = 15$

15. $-7 = \frac{w}{6}$

16. $-6y = -6$

17. $18 = -9b$

18. $-13c = -52$

19. $4h = -44$

20. $-7x = -63$

NAME _____ DATE _____ PERIOD _____

Lesson 2 Problem-Solving Practice

Multiplication and Division Equations

For Exercises 1–8, write an equation. Then solve the equation.

1. EARNINGS Monica earned twice as much as Samuel mowing lawns. If Monica earned $48, how much did Samuel earn?

2. CHOIR The number of eighth graders in choir is three times the number of seventh graders. If there are 48 eight graders in choir, how many seventh graders are in choir?

3. CARS The cost of 6 motorcycles is equal to the cost of one SUV. If the SUV costs $30,000, find the cost of one motorcycle.

4. JUMP ROPES Carmen has a rope 54 feet long. She wants to cut it into 6-foot lengths to make jump ropes for the members of the jump roping team. How many jump ropes can Carmen make?

5. TAE KWON DO There are 8 competitors in each ring for a tae kwon do tournament. If there are 96 competitors in the tournament, how many rings do they need?

6. RAINFALL The amount of rainfall on Monday and Thursday is shown in the table. If the same amount of rain that fell on Monday fell for 3 days and the same amount that fell on Thursday fell for 2 days, how much rain would fall over those 5 days?

Day	Monday	Thursday
Rain (in.)	0.50	0.25

7. GERANIUMS Mary wants to put 4 geraniums in each pot. If she has 8 pots, how many geraniums should she buy?

8. HOMES The McClarens sold their house in Orlando, Florida, for $300,000. They split the income evenly among their four children. How much did each child get?

 Name_____

One-Step Equations With Integers

Date_____ Period____

Solve each equation.

1) $v - 10 = -9$

2) $v - 10 = -3$

3) $x - 3 = 4$

4) $\frac{x}{5} = 2$

5) $22 = -11k$

6) $-13m = -377$

7) $b - 7 = -1$

8) $-8 = p - 13$

9) $-40 = -5p$

10) $418 = -22a$

11) $\frac{a}{29} = 5$

12) $-2 = \frac{m}{16}$

13) $x - 11 = 16$

14) $-10 = x - 21$

15) $20 = \frac{n}{4}$

16) $n - 29 = -53$

17) $-19 = b - 6$

18) $-8 = -16 + n$

19) $-9 + x = -26$

20) $29 + n = 13$

21) $21 = \frac{x}{18}$

22) $k + 1 = -27$

23) $6 = m - 16$

24) $5 = v + 29$

25) $168 = -84n$

26) $41k = -2747$

27) $\frac{x}{15} = 11$

28) $-71 = \frac{x}{64}$

Infinite Algebra 1 Name_____

One-Step Equations

Date_____ Period____

Solve each equation.

1) $26 = 8 + v$

2) $3 + p = 8$

3) $15 + b = 23$

4) $-15 + n = -9$

5) $m + 4 = -12$

6) $x - 7 = 13$

7) $m - 9 = -13$

8) $p - 6 = -5$

9) $v - 15 = -27$

10) $n + 16 = 9$

11) $-104 = 8x$

12) $14b = -56$

13) $-6 = \frac{b}{18}$

14) $10n = 40$

15) $\frac{v}{8} = 2$

16) $16 = \frac{k}{11}$

17) $-15x = 0$

18) $-17x = -204$

19) $21 = -7n$

20) $\frac{m}{4} = -13$

21) $-126 = 14k$

22) $-143 = -11x$

23) $-16 + x = -15$

24) $-5 = \frac{a}{18}$

25) $-17 = x - 15$

26) $n - 8 = -10$

27) $\frac{v}{7} = 8$

28) $a + 11 = 20$

29) $-7 + m = 8$

30) $18 + m = 8$

NAME _____ DATE _____ PERIOD _____

Lesson 3 Skills Practice

Solve Equations with Rational Coefficients

Solve each equation. Check your solution.

1. $3.4a = 57.8$

2. $-2 = 0.8n$

3. $\frac{5}{6}k = -20$

4. $12 = 0.9a$

5. $\frac{3}{4}c = -12$

6. $0.36y = 18$

7. $\frac{3}{5}y = 6$

8. $-15 = \frac{3}{7}b$

9. $\frac{6}{7}c = 18$

10. $\frac{7}{3}x = \frac{2}{3}$

11. $\frac{11}{12} = \frac{3}{4}h$

12. $\frac{9}{14}y = \frac{3}{7}$

13. $\frac{m}{26} = -\frac{1}{2}$

14. $0.6 = \frac{n}{5}$

15. $1.5r = -5.07$

16. $-4.3 = 0.5n$

17. $1.5x = 9$

18. $\frac{3}{8}x = 21$

19. $-14 = \frac{7}{9}m$

20. $3.2 = \frac{t}{8}$

21. $\frac{m}{18} = -\frac{1}{9}$

NAME _____ DATE _____ PERIOD _____

Lesson 3 Problem-Solving Practice

Solve Equations with Rational Coefficients

1. BIKING The speed s that Brent can ride his bike if he rides $\frac{3}{5}$ of an hour and travels 4 miles is given by the equation $4 = \frac{3}{5}s$. What is Brent's speed?

2. BAND The woodwind section of the middle school band makes up $\frac{1}{4}$ of the band. There are 9 members in the woodwind section. Use the equation $\frac{1}{4}m = 9$ to find the number of members m in the band.

3. SALE A coat is selling for $\frac{3}{4}$ of the original price. The sale price is \$180. The original price p can be found using the equation $\frac{3}{4}p = 180$. Find the original price.

4. SALARIES Aaron's annual salary is $\frac{2}{3}$ as much as Dorie's salary. Aaron makes \$46,000. Find Dorie's salary x using the equation $46{,}000 = \frac{2}{3}x$.

5. ANIMALS At a wildlife preserve, $\frac{1}{3}$ of the total number of reptiles and birds are reptiles. There are 14 reptiles. Use the equation $\frac{1}{3}a = 14$ to find the total number of reptiles and birds.

6. SALES TAX The sticker price p of a purchase with $\frac{1}{10}$ sales tax and a total price (including tax) of \$5.28 can be found using the equation $\frac{11}{10}p = 5.28$. What is the sticker price?

7. SEWING Each costume uses $\frac{3}{4}$ yard of fabric. The number of costumes c that can be made using $11\frac{1}{4}$ yards of fabric can be found using the equation $\frac{3}{4}c = 11\frac{1}{4}$. Find the number of costumes that can be made.

8. SAVINGS Jasmine saves \$46 each month from her part-time job. She saves $\frac{2}{5}$ of her earnings. Her earnings a can be found by using the equation $\frac{2}{5}a = 46$. Find her earnings.

NAME _____ DATE _____ PERIOD _____

Lesson 4 Skills Practice

Solve Two-Step Equations

Solve each equation. Check your solution.

1. $2x + 1 = 9$

2. $5b + 2 = 17$

3. $3w + 5 = 23$

4. $\frac{3}{8}n + 1 = -25$

5. $4t - 2 = 14$

6. $7k - 3 = 32$

7. $8x - 1 = 63$

8. $2x - 5 = 15$

9. $2 + \frac{1}{6}a = -4$

10. $9 + 4b = 17$

11. $2p + 14 = 0$

12. $3y + \frac{2}{5} = -\frac{1}{5}$

13. $-\frac{2}{3}w + 5 = 4$

14. $8x + 7 = -9$

15. $5d - 1 = -11$

16. $4d - 35 = -3$

17. $11x - 24 = -2$

18. $15a - 54 = -9$

19. $3g - 49 = -7$

20. $-\frac{1}{2}x - 7 = 18$

21. $-9d - 1 = 17$

22. $-\frac{4}{5}f + 1 = -13$

23. $-5b + 24 = -1$

24. $-6x + 4 = -2$

NAME _____ DATE _____ PERIOD _____

Lesson 4 Problem-Solving Practice

Solve Two-Step Equations

1. GOLF It costs \$12 to attend a golf clinic with a local pro. Buckets of balls for practice during the clinic cost \$3 each. How many buckets can you buy at the clinic if you have \$30 to spend?	**2. MONEY** Paulo has \$145 in his savings account. He earns \$36 a week mowing lawns. If Paulo saves all of his earnings, after how many weeks will he have \$433 saved?
3. RETAIL An online retailer charges \$6.99 plus \$0.55 per pound to ship electronics purchases. How many pounds is a DVD player for which the shipping charge is \$11.94?	**4. MONEY** Caitlin has a \$10 gift certificate to the music store. She has chosen a number of CDs from the \$7 bargain bin. If the cost of the CDs is \$32 after the gift certificate is credited, how many CDs did Caitlin buy?
5. EMPLOYMENT Mrs. Jackson earned a \$500 bonus for signing a one-year contract to work as a nurse. Her salary is \$22 per hour. If her first week's check including the bonus is \$1,204, how many hours did Mrs. Jackson work?	**6. PHOTOGRAPHY** Alma subscribes to a website for processing her digital pictures. The subscription is \$5.95 per month and 4-by-6-inch prints are \$0.19 each. How many prints does Alma purchase if the charge for January is \$15.83?

 Name_____

Two-Step Equations With Integers

Date_____ Period____

Solve each equation.

1) $\frac{r}{10} + 4 = 5$

2) $\frac{n}{2} + 5 = 3$

3) $3p - 2 = -29$

4) $1 - r = -5$

5) $\frac{k - 10}{2} = -7$

6) $\frac{n - 5}{2} = 5$

7) $-9 + \frac{n}{4} = -7$

8) $\frac{9 + m}{3} = 2$

9) $\frac{-5 + x}{22} = -1$

10) $4n - 9 = -9$

11) $\frac{x + 9}{2} = 3$

12) $\frac{-12 + x}{11} = -3$

13) $\frac{-4 + x}{2} = 6$

14) $-5 + \frac{n}{3} = 0$

15) $\frac{p}{4} + 8 = 7$

16) $9 + \frac{n}{4} = 15$

17) $6 + \frac{x}{2} = 4$

18) $\frac{b + 11}{3} = -2$

19) $\frac{a - 10}{3} = -4$

20) $-12r + 4 = 100$

21) $\frac{m}{16} - 9 = -8$

22) $-7 + 4r = -15$

23) $\frac{m - 13}{2} = -8$

24) $-5x + 13 = -17$

25) $\frac{k + 10}{-2} = 5$

26) $\frac{p + 8}{-2} = 10$

27) $-14r - 19 = 303$

28) $\frac{x}{-4} - 5 = -8$

 Name_____

Two-Step Equations

Date_____ Period____

Solve each equation.

1) $6 = \frac{a}{4} + 2$

2) $-6 + \frac{x}{4} = -5$

3) $9x - 7 = -7$

4) $0 = 4 + \frac{n}{5}$

5) $-4 = \frac{r}{20} - 5$

6) $-1 = \frac{5 + x}{6}$

7) $\frac{v + 9}{3} = 8$

8) $2(n + 5) = -2$

9) $-9x + 1 = -80$

10) $-6 = \frac{n}{2} - 10$

11) $-2 = 2 + \frac{v}{4}$

12) $144 = -12(x + 5)$

13) $-15 = -4m + 5$

14) $10 - 6v = -104$

15) $8n + 7 = 31$

16) $-9x - 13 = -103$

17) $\frac{n + 5}{-16} = -1$

18) $-10 = -10 + 7m$

19) $-10 = 10(k - 9)$

20) $\frac{m}{9} - 1 = -2$

21) $9 + 9n = 9$

22) $7(9 + k) = 84$

23) $8 + \frac{b}{-4} = 5$

24) $-243 = -9(10 + x)$

NAME _____ DATE _____ PERIOD _____

Lesson 5 Skills Practice

More Two-Step Equations

Solve each equation. Check your solution.

1. $3(x + 5) = 39$

2. $7(x + 8) = 49$

3. $-5(x - 6) = 15$

4. $10(x - 5) = -80$

5. $4(x + 9) = 20$

6. $6(x + 12) = -42$

7. $\frac{4}{9}(x + 13) = 8$

8. $\frac{9}{10}(x + 8) = 18$

9. $\frac{2}{7}(x - 9) = -4$

10. $\frac{3}{7}(x - 2) = 15$

11. $1.5(x + 7) = 11.25$

12. $4.5(x - 9) = -13.5$

13. $8.3(x - 3.1) = -37.35$

14. $0.4(x + 2.4) = 2.96$

15. $\frac{4}{5}(x + 7) = 20$

16. $\frac{6}{11}(x + 5) = 6$

17. $-\frac{1}{8}(x - 4) = -4$

18. $\frac{2}{5}(x - 16) = -6$

19. $9.2(x + 6.4) = 132.48$

20. $8.2(x - 7) = -24.6$

21. $\frac{3}{5}(x - 19) = -15$

22. $0.1(x + 7) = 3.5$

23. $-2.8(x + 4.9) = 18.2$

24. $6.5(x - 4) = 19.5$

NAME _____ DATE _____ PERIOD _____

Lesson 5 Problem-Solving Practice

More Two-Step Equations

1. The length of each side of a square is increased by 6 inches, so the perimeter is now 36 inches. Write and solve an equation to find the original length of each side of the square.

2. Madison and her sister received the same amount of money to go out to eat. Each girl spent $13. After lunch, the girls had a total of $4. Write and solve an equation to find the amount of money each girl received.

3. Mrs. Palmer bought one pair of goggles, one bathing suit, and one beach towel for each of her three daughters.

Item	Price ($)
Goggles	6
Bathing suit	25
Beach towel	13

Suppose she had $18 left after buying the swimming items. Write an equation to find the amount Mrs. Palmer originally had to spend on each daughter.

4. William gave 4 football cards to each of his 6 friends. Suppose he had 54 cards left. Write and solve an equation to find how many cards each friend initially had.

5. For each month of a year, Selena saved an extra $100 from her paycheck. By the end of the year, she has saved $1,800. Write and solve an equation to determine how much she typically saved from each paycheck.

6. Mr. Kelly bought the ingredients to make trail mix. He bought 1.5 pounds of peanuts and spent $22.50 on peanuts and chocolates.

Ingredient	Price per Pound ($)
Peanuts	4.50
Raisins	2.00
Chocolates	4.50

Write and solve an equation to determine the number of pounds of chocolates Mr. Kelly bought.

Kuta Software - Infinite Algebra 1 Name_____

Multi-Step Equations

Date_____ Period____

Solve each equation.

1) $-20 = -4x - 6x$

2) $6 = 1 - 2n + 5$

3) $8x - 2 = -9 + 7x$

4) $a + 5 = -5a + 5$

5) $4m - 4 = 4m$

6) $p - 1 = 5p + 3p - 8$

7) $5p - 14 = 8p + 4$

8) $p - 4 = -9 + p$

9) $-8 = -(x + 4)$

10) $12 = -4(-6x - 3)$

11) $14 = -(p - 8)$

12) $-(7 - 4x) = 9$

13) $-18 - 6k = 6(1 + 3k)$

14) $5n + 34 = -2(1 - 7n)$

15) $2(4x - 3) - 8 = 4 + 2x$

16) $3n - 5 = -8(6 + 5n)$

17) $-(1 + 7x) - 6(-7 - x) = 36$

18) $-3(4x + 3) + 4(6x + 1) = 43$

19) $24a - 22 = -4(1 - 6a)$

20) $-5(1 - 5x) + 5(-8x - 2) = -4x - 8x$

 Name_____

Solving Multi-Step Equations

Date_____ Period____

Solve each equation.

1) $4n - 2n = 4$

2) $-12 = 2 + 5v + 2v$

3) $3 = x + 3 - 5x$

4) $x + 3 - 3 = -6$

5) $-12 = 3 - 2k - 3k$

6) $-1 = -3r + 2r$

7) $6 = -3(x + 2)$

8) $-3(4r - 8) = -36$

9) $24 = 6(-x - 3)$

10) $75 = 3(-6n - 5)$

11) $-3(1+6r)=14-r$

12) $6(6v+6)-5=1+6v$

13) $-4k+2(5k-6)=-3k-39$

14) $-16+5n=-7(-6+8n)+3$

15) $10p+9-11-p=-2(2p+4)-3(2p-2)$

16) $-10n+3(8+8n)=-6(n-4)$

17) $10(x+3)-(-9x-4)=x-5+3$

18) $12(2k+11)=12(2k+12)$

19) $-12(x-12)=-9(1+7x)$

20) $-11+10(p+10)=4-5(2p+11)$

Critical thinking question:

21) Explain two ways you could solve $20=5(-3+x)$

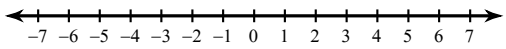
Kuta Software - Infinite Pre-Algebra Name_____

Inequalities and Their Graphs

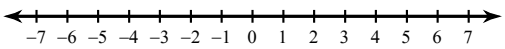
Date_____ Period____

Draw a graph for each inequality.

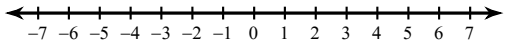
1) $x \leq 1$



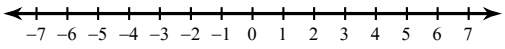
2) $m > -2$



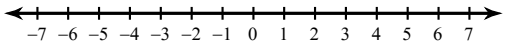
3) $x \leq 4$



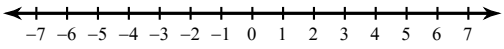
4) $m > -6$



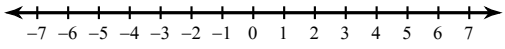
5) $-5 \geq a$



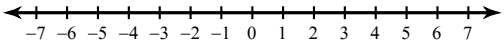
6) $4 \geq x$



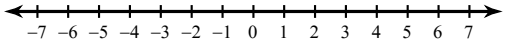
7) $-2 < b$



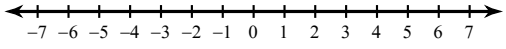
8) $1 > x$



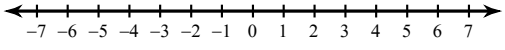
9) $-r \leq -2$



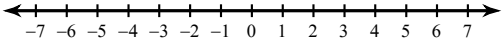
10) $4 \leq -n$



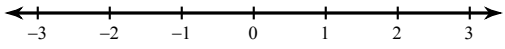
11) $-n \leq -5$



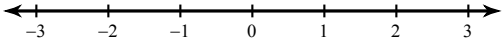
12) $1 < -x$



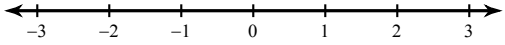
13) $n \geq \frac{3}{2}$



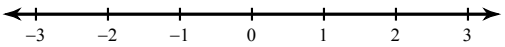
14) $k < 2$



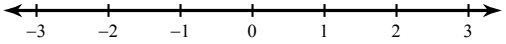
15) $p \geq -1\frac{1}{2}$



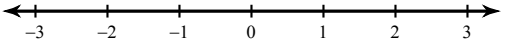
16) $n \geq 1$



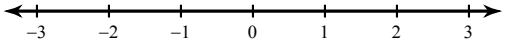
17) $x \geq -2$



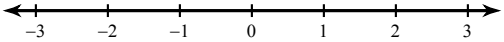
18) $-2\frac{1}{2} \leq n$



19) $-1\frac{1}{2} > -n$

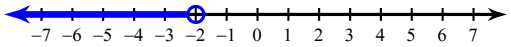


20) $-1\frac{1}{2} \geq v$



Write an inequality for each graph.

21)



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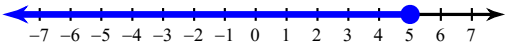

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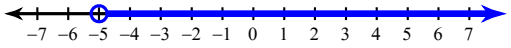

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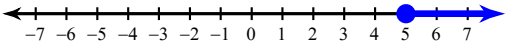

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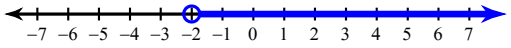

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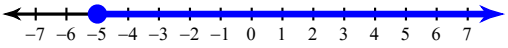

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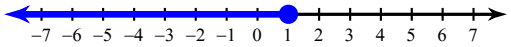

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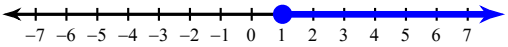


NAME _____ DATE _____ PERIOD _____

Lesson 6 Skills Practice

Solve Inequalities by Addition or Subtraction

Solve each inequality.

1. $a + 4 < 9$

2. $e - 7 > 1$

3. $-4 \geq k - 2$

4. $y + 6 > 9$

5. $n - 9 \geq 5$

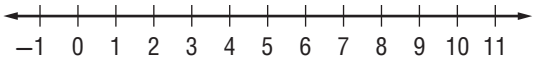
6. $-4 > h - 2$

7. $-19 > x - 11$

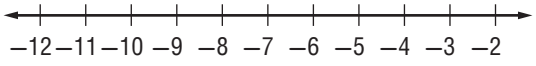
8. $5 \leq q + 12$

Solve each inequality. Graph the solution set on a number line.

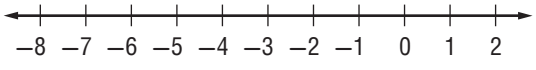
9. $8 < p - 1$



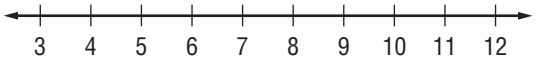
10. $w + 5 \geq -6$



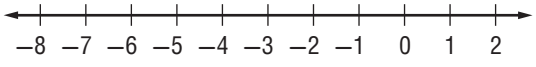
11. $1 > x + 6$



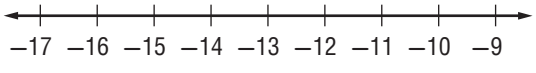
12. $4 \leq v - 7$



13. $b - 3 \leq -8$



14. $m + 9 < -8$



Write an inequality and solve each problem.

15. Two less than a number is less than 9.

16. The difference between a number and 3 is no more than 2.

17. The sum of a number and 8 is more than 4.

18. Two more than a number is less than 13.

NAME _____ DATE _____ PERIOD _____

Lesson 6 Problem-Solving Practice

Solve Inequalities by Addition or Subtraction

1. DRIVING Louella is driving from Melbourne to Pensacola, a distance of more than 500 miles. After driving 240 miles, Louella stops for lunch. Write and solve an inequality to find how much farther Louella has to drive to reach Pensacola.

2. MONEY Aimee and Desmond are going to a play this evening. Desmond wants to have at least $50 in his wallet. He currently has $5. Write and solve an inequality to find how much more cash Desmond should put in his wallet.

3. FIELD TRIP There is space for 120 students to go on a field trip. Currently, 74 students have signed up. Write and solve an inequality to find how many more students can sign up for the field trip.

4. MUSIC Rogan is burning a music CD. The CD holds at most 70 minutes of music. Rogan has already selected 45 minutes of music. Write and solve an inequality to find how many more minutes of music Rogan can select.

5. HOMEWORK Petra must write a report with more than 1,000 words for her history class. So far, she has written 684 words. Write and solve an inequality to find how many more words Petra needs to write for her report.

6. HEIGHT Leslie hopes to be at least 72 inches tall. Right now he is 56 inches tall. Write an solve an inequality to find how much more Leslie would like to grow.

7. INTERNET Julius is allowed to surf the Internet for only 3 hours a week. He has already been online for $1\frac{2}{3}$ hours this week. Write and solve an inequality to find how much more time Julius can spend online this week.

8. GROCERIES The table shows how much Colleen has spent at the grocery store this week. To stay within her budget, she can spend only $90 per week on groceries. Write and solve an inequality to find how much more Colleen can spend at the grocery store this week.

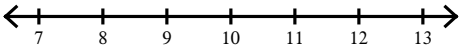
Day	Amount Spent ($)
Monday	28
Wednesday	39

 Name_____

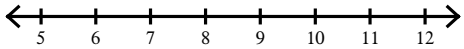
Solving One-Step Inequalities by Adding/Subtracting Date_____ Period____

Solve each inequality and graph its solution.

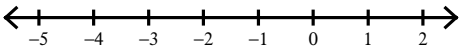
1) $x + 8 \geq 18$



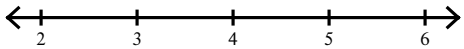
2) $x - 1 > 6$



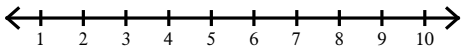
3) $-7 + x \geq -8$



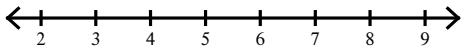
4) $x - 1 \leq 3$



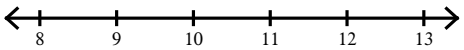
5) $n - 2 \leq 4$



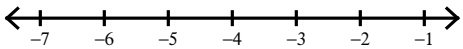
6) $v - 1 < 3$



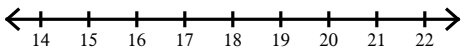
7) $-18 + n < -7$



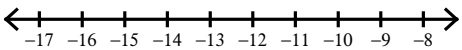
8) $r + 13 < 9$



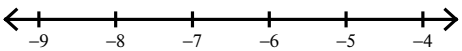
9) $n - 4 \geq 13$



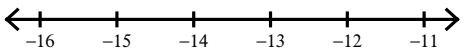
10) $p + 8 > -4$



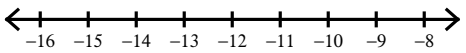
11) $17 + k \leq 10$



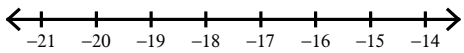
12) $-2 + x \leq -16$



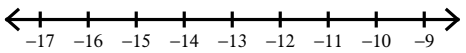
13) $-28 < v - 16$



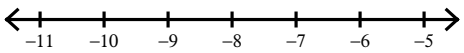
14) $n - 2 > -20$



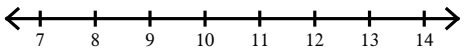
15) $x - 7 < -20$



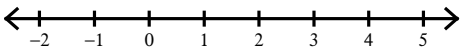
16) $x + 13 \geq 5$



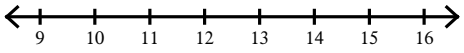
17) $x - 10 > -1$



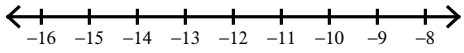
18) $x - 12 < -11$



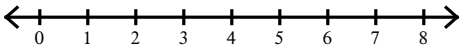
19) $r - 2 > 11$



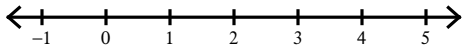
20) $9 + n > -4$



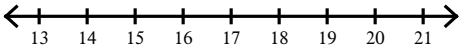
21) $20 \geq p + 16$



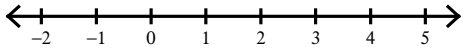
22) $11 \geq 8 + n$



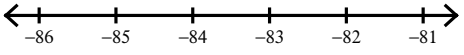
23) $6 > -11 + a$



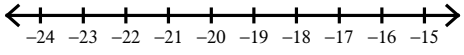
24) $p - 6 \geq -3$



25) $n - 83 > -166$



26) $-3 \geq x + 16$



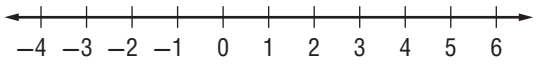
NAME _____ DATE _____ PERIOD _____

Lesson 7 Skills Practice

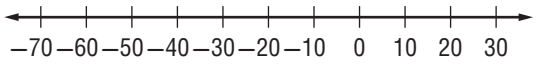
Solve Inequalities by Multiplication or Division

Solve each inequality. Graph the solution set on a number line.

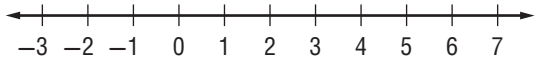
1. $3v > 12$



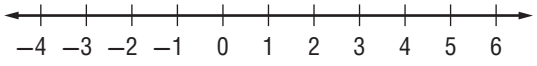
2. $\frac{p}{4} < -15$



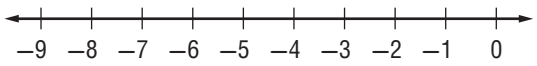
3. $-12 \leq -3g$



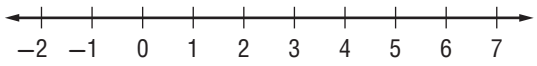
4. $60 \geq 12c$



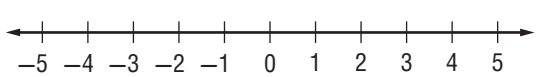
5. $\frac{a}{2} > -4$



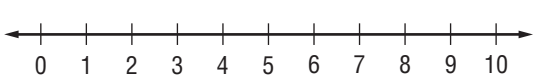
6. $1 \leq \frac{u}{5}$



7. $-14 \geq 7n$



8. $-4d \geq -36$



Solve each inequality. Check your solution.

9. $3a < -16$

10. $\frac{b}{5} \geq -25$

11. $\frac{m}{2} < 4$

12. $\frac{1}{6}r > -\frac{5}{3}$

13. $-6d \leq -6$

14. $\frac{z}{-8} < 2$

NAME _____ DATE _____ PERIOD _____

Lesson 7 Problem-Solving Practice

Solve Inequalities by Multiplication or Division

1. PLANTS Trini needs more than 51 cubic feet of soil to top up his raised garden. Each bag of soil contains 1.5 cubic feet. Write and solve an inequality to find how many bags of soil Trini needs.

2. PETS Becky wants to buy some fish for her aquarium. She has $20 to spend and the fish cost $2.50 each. Write and solve an inequality to find how many fish Becky can afford.

3. PIZZA Vikram and four of his friends are planning to split a pizza. They want to spend at most $4 per person. Write and solve an inequality to find the maximum cost of the pizza they can order.

4. ROLLS Sadie wants to make several batches of rolls. She has 13 tablespoons of yeast left in the jar and each batch of rolls takes $3\frac{1}{4}$ tablespoons. Write and solve an inequality to find the number of batches of rolls Sadie can make.

5. CONSTRUCTION Vance wants to have pictures framed. Each frame and mat costs $32 and he has at most $150 to spend. Write and solve an inequality to find the number of pictures he can have framed.

6. RECTANGLE You are asked to draw a rectangle with a width of 5 inches and an area less than 55 square inches. Write and solve an inequality to find the length of the rectangle.

7. BABYSITTING Hermes gets $4 an hour for babysitting. He needs to earn at least $100 for a stereo. Write and solve an inequality to find the number of hours he must babysit to earn enough for the stereo.

8. TIME The table shows how many minutes per day Terri spends on the phone and watching television. If she has 180 minutes in the day for leisure activities, write and solve an inequality to find the number of minutes she can spend listening to music.

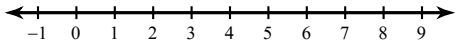
Activity	Number of Minutes
Talking on phone	25
Watching television	120

Kuta Software - Infinite Pre-Algebra Name_____

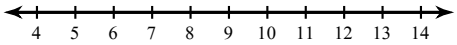
Solving One-Step Inequalities by Multiplying/Dividing Date_____ Period____

Solve each inequality and graph its solution.

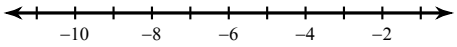
1) $-4m \geq -4$



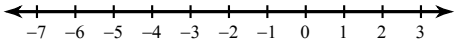
2) $\frac{n}{5} \leq 2$



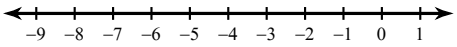
3) $-4r > 16$



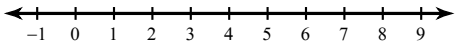
4) $\frac{n}{2} < 0$



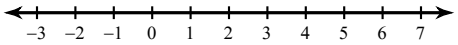
5) $\frac{x}{5} \leq -\frac{3}{5}$



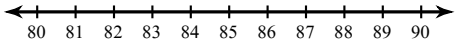
6) $\frac{x}{2} \geq 3$



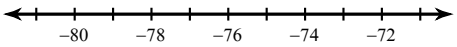
7) $14v \leq 14$



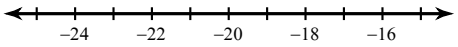
8) $\frac{b}{6} > 14$



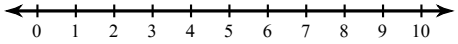
9) $\frac{a}{6} < -13$



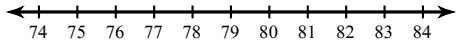
10) $\frac{n}{3} \geq -6$



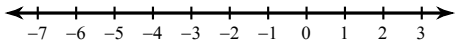
11) $-10x < -80$



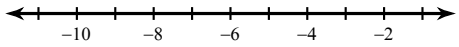
12) $\frac{k}{13} \leq 6$



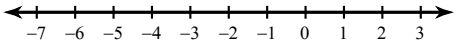
13) $4x \geq -20$



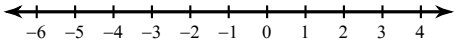
14) $60 < -10a$



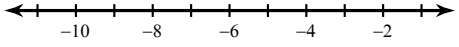
15) $8 > 8n$



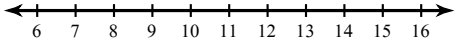
16) $0 \geq -2p$



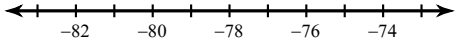
17) $24 \geq -4n$



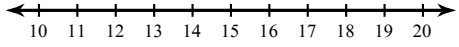
18) $4x \leq 40$



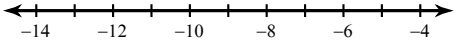
19) $-10 < \frac{r}{8}$



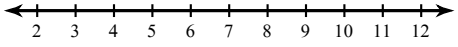
20) $\frac{m}{3} \leq 5$



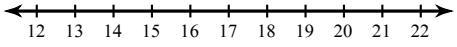
21) $-2 \geq \frac{n}{3}$



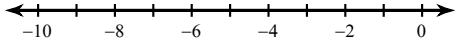
22) $\frac{7}{3} \leq \frac{p}{3}$



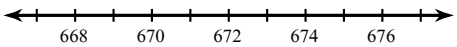
23) $\frac{b}{2} < 7$



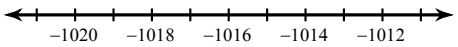
24) $-12 < 3x$



25) $42 > \frac{x}{16}$



26) $\frac{v}{29} \geq -35$



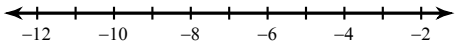
Infinite Algebra 1 Name_____

One-Step Inequalities

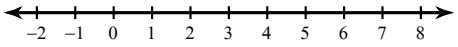
Date_____ Period____

Solve each inequality and graph its solution.

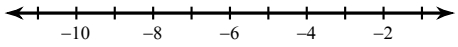
1) $-12 > x - 7$



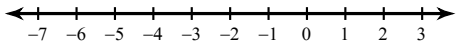
2) $-1 + r \geq 4$



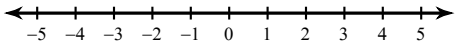
3) $n - 6 \leq -14$



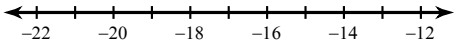
4) $b - 7 < -12$



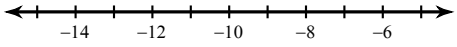
5) $a - 17 > -16$



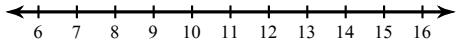
6) $15 + x \leq 0$



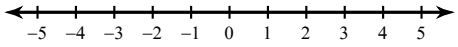
7) $3 + v \leq -9$



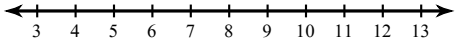
8) $8 \geq n - 6$



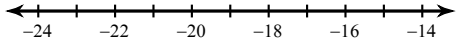
9) $-3x > 3$



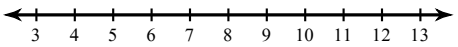
10) $\frac{n}{3} > 3$



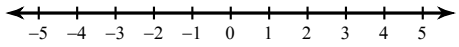
11) $\frac{k}{4} < -4$



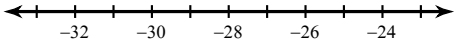
12) $-9x \geq -90$



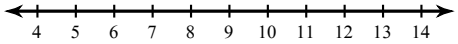
13) $0 \geq 7n$



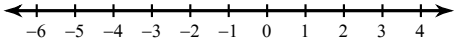
14) $\frac{m}{5} \geq -5$



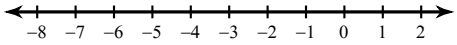
15) $-13x < -156$



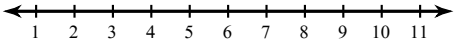
16) $32 \geq -16p$



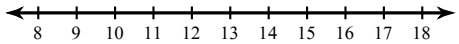
17) $-8 > v - 3$



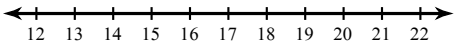
18) $11 \leq 5 + x$



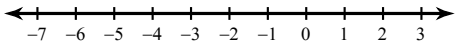
19) $25 \geq n + 13$



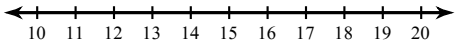
20) $-168 > -12a$



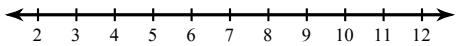
21) $-3 \leq x - 4$



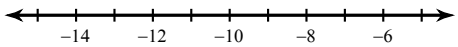
22) $\frac{r}{3} > 6$



23) $12n \geq 84$



24) $-22 > -10 + b$



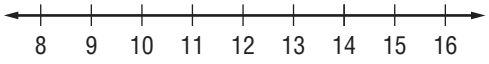
NAME _____ DATE _____ PERIOD _____

Lesson 8 Skills Practice

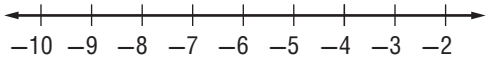
Solve Two-Step Inequalities

Solve each inequality. Graph the solution set on a number line.

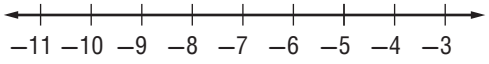
1. $\frac{x}{2} - 1 < 5$



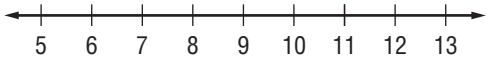
2. $13 \geq -x + 7$



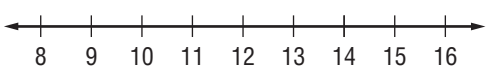
3. $-2 + 3x > -23$



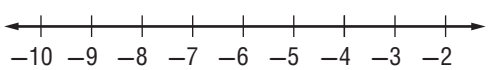
4. $3x - 4 \leq 23$



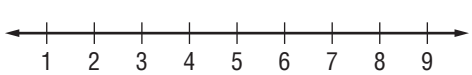
5. $10 \geq \frac{x}{3} + 6$



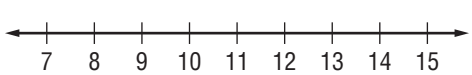
6. $-2x + 4 < 16$



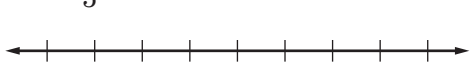
7. $13 > 3 + 2x$



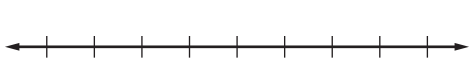
8. $11x - 1 \leq 120$



9. $-4 + \frac{x}{5} < -4$



10. $6x - 4 \geq -28$



11. $-6 \leq -4 - 2x$

12. $5 > 2 + \frac{x}{3}$

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Lesson 8 Problem-Solving Practice

Solve Two-Step Inequalities

1. CLOTHING Matilda needs at least $112 to buy a new dress. She has already saved $40. She earns $9 an hour babysitting. Write and solve an inequality to find how many hours she will need to babysit to buy the dress. Interpret the solution.

2. SAVINGS Tameca already has $55 dollars in her savings account. If she puts $5 per week in her account, write and solve an inequality to find out how many weeks she must save to have at least $100 in her account. Interpret the solution.

3. COMMISSION Manuel earns $400 per week plus a 3% commission on everything he sells. Write and solve an inequality to find out how much he must sell to have a weekly income of at least $700. Interpret the solution.

4. CARS Remington needs at least $3,000 to buy a used car. He already has $1,800. If he saves $50 per week, write and solve an inequality to find out how many weeks he must save to buy the car. Interpret the solution.

5. POSTCARDS Latrell has $8 to spend on postcards. He wants to buy one large postcard and some small ones. Write and solve an inequality to find out how many small postcards Latrell can purchase. Interpret the solution.

Postcards
Large $2
Medium $1.50
Small $1.25

6. CARRIAGE RIDE You want to spend at most $12 on a carriage ride. The driver tells you there is an initial charge of $5 plus $0.50 per mile. Write and solve an inequality to find out how many miles you can ride. Interpret the solution.

7. BAKING Corey has 16 cups of flour to make cookies. One batch of cookies takes $2\frac{1}{2}$ cups of flour. If he must save 6 cups of flour for other baking, write and solve an inequality to find out how many batches of cookies he can make. Interpret the solution.

8. ENTERTAINMENT Sylvia needs at least $310 for a new audio system. She has already saved $120. She earns $10 per hour at her part-time job. Write and solve an inequality to find how many hours she will need to work to buy the system. Interpret the solution.

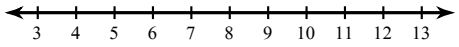
Kuta Software - Infinite Algebra 1 Name_____

Two-Step Inequalities

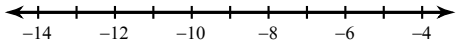
Date_____ Period____

Solve each inequality and graph its solution.

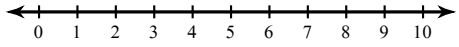
1) $2x + 4 \geq 24$



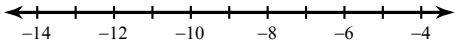
2) $\frac{m}{3} - 3 \leq -6$



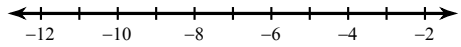
3) $-3(p + 1) \leq -18$



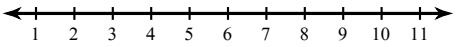
4) $-4(-4 + x) > 56$



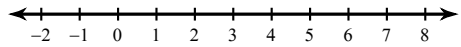
5) $-b - 2 > 8$



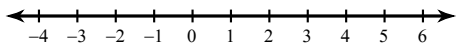
6) $-4(3 + n) > -32$



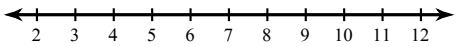
7) $4 + \frac{n}{3} < 6$



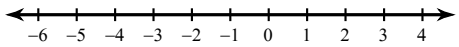
8) $-3(r - 4) \geq 0$



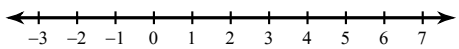
9) $-7x + 7 \leq -56$



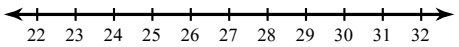
10) $-3(p - 7) \geq 21$



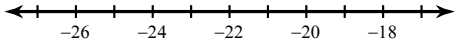
11) $-11x - 4 > -15$



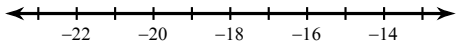
12) $\frac{-9 + a}{15} > 1$



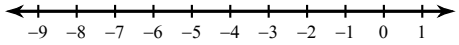
13) $-1 \le \frac{v-2}{21}$



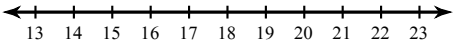
14) $-132 > 12(n+9)$



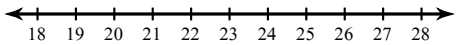
15) $\frac{-11+n}{15} < -1$



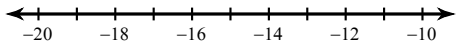
16) $-90 \ge -5(k-3)$



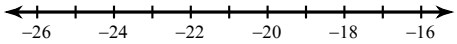
17) $4 < 1 + \frac{n}{7}$



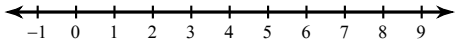
18) $-1 > \frac{12+x}{4}$



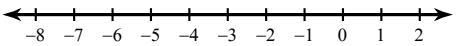
19) $7n - 1 > -169$



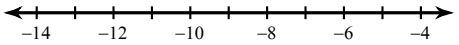
20) $-4b - 5 > -25$



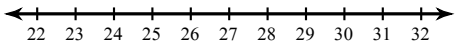
21) $84 \ge -7(v-9)$



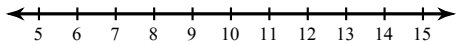
22) $\frac{-8+r}{2} > -8$



23) $\frac{x}{-6} - 8 \le -12$



24) $\frac{m-3}{2} \le 5$



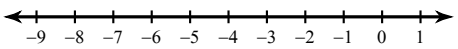
Kuta Software - Infinite Pre-Algebra Name_____

Solving Two-Step Inequalities

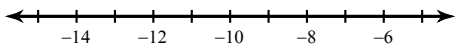
Date_____ Period____

Solve each inequality and graph its solution.

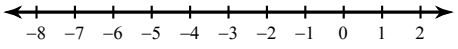
1) $\frac{n}{3} + 2 > 0$



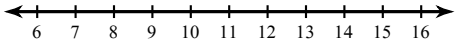
2) $\frac{p}{9} - 1 \leq -2$



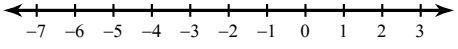
3) $\frac{x}{1} + 5 > 5$



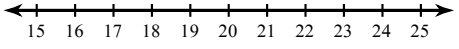
4) $\frac{1+m}{9} \geq 1$



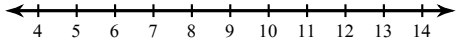
5) $-2r - 2 \leq 4$



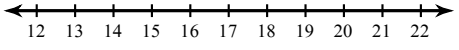
6) $8x + 2 \leq 138$



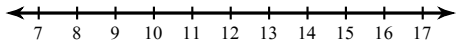
7) $3 + \frac{b}{9} < 4$



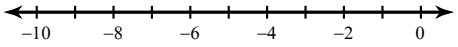
8) $9 + \frac{n}{2} > 16$



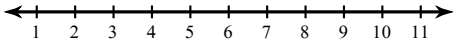
9) $-7v + 5 \geq -79$



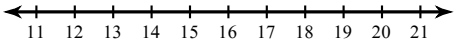
10) $\frac{n+3}{2} > -2$



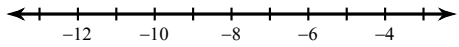
11) $4 > \frac{a+1}{2}$



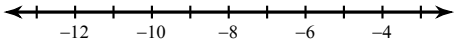
12) $-2 + \frac{x}{2} > 6$



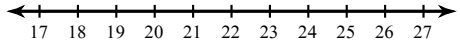
13) $60 > 5 - 5n$



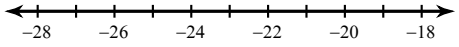
14) $\frac{x+1}{2} \geq -4$



15) $6 \leq 5 + \frac{p}{20}$



16) $-18 + \frac{k}{3} \leq -26$



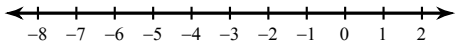
Infinite Algebra 1 Name_____

Multi-Step Inequalities

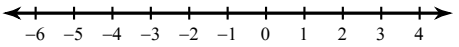
Date_____ Period____

Solve each inequality and graph its solution.

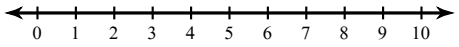
1) $3 < -5n + 2n$



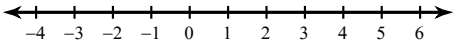
2) $6x + 2 + 6x < 14$



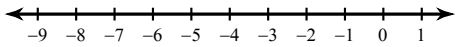
3) $-p - 4p > -10$



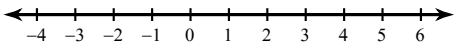
4) $18 \geq 5k + 4k$



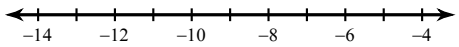
5) $9 \geq -2m + 2 - 3$



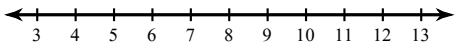
6) $-3 - 6(4x + 6) > -111$



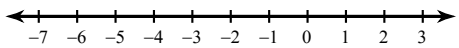
7) $6 - 4(6n + 7) \geq 122$



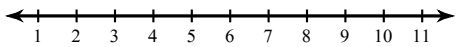
8) $-138 \geq -6(6b - 7)$



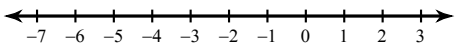
9) $167 < 6 + 7(2 - 7r)$



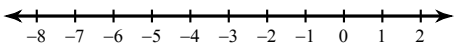
10) $5(6 + 3r) + 7 \geq 127$



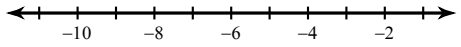
11) $-8x + 2x - 16 < -5x + 7x$



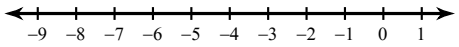
12) $-1 - 6x - 6 > -11 - 7x$



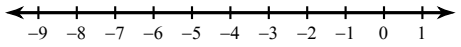
13) $a - 6 \le 15 + 8a$



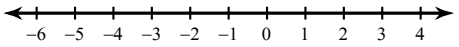
14) $13 + 2v - 8 + 6 > -7 - v$



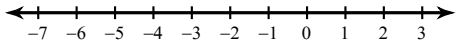
15) $-5n - 6n \le 8 - 8n - n$



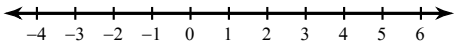
16) $-x < -x + 7(x - 2)$



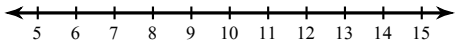
17) $-5n + 6 \ge -7(5n - 6) - 6n$



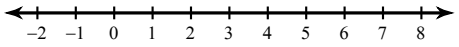
18) $3(p - 3) - 5p > -3p - 6$



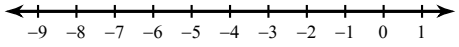
19) $28 - k \ge 7(k - 4)$



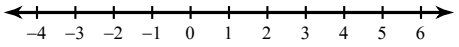
20) $28 - 7x \le -4(-7x - 7)$



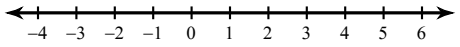
21) $-6(1 + 7k) + 7(1 + 6k) \le -2$



22) $-2(2 - 2x) - 4(x + 5) \le -24$



23) $3(1 - 2x) > 3 - 6x$



24) $-2(5 + 6n) < 6(8 - 2n)$