PRE ALGEBRA 2 - PA CORE 8 – COURSE 3

STUDENT WORKBOOK

UNIT 2 – EXPRESSIONS AND EQUATIONS

Before

After

Unit 2	Expressions and Equations	PURPLE	GREEN	RED
2.1	Solve Equations with Rational Coefficients	7.3	3.6	2.1
2.2	Solve Two Step Equations	7.1	3.3	1.5
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STUDY ISLAND TOPICS

Proportional Relationships
Solve Linear Equations
Systems of Equations

Name: _____ Period ____

Review of Algebraic and Numeric Expressions

Date_____ Period____

Evaluate each expression.

1) $(7 - 2) \div 5$

2) $(3 + 3)^2$

3) $(6 - 3)^2$

4) $5 + (16 + 2) \div 3$

5) $(-6 \times 2) \div -3$

6) $2 + 12 \div 2 + 1$

7) $-4 - (1 - 5) - (-4)^2$

8) $-3 \times 2 \times 2(-3 - 1)$

9) $(4 - 3)(1 - (3 + 5)) \times 5$

10) $((-16 - (-2 + 1)) \times 2) \div 5$

11) $2 - 8 \div -2 - 3 - -12 \div -6 \times -2$

12) $(-11 - 6 - -5 + 1 + 3 \times 2) \div -5$

Evaluate each using the values given.

13) $y + z + 2$; use $y = -6$, and $z = 5$

14) $p(q \div 3 - p)$; use $p = -6$, and $q = -3$

15) $z \div 6 + x + x - 5$; use $x = 1$, and $z = 6$

16) $x(z + 3) + 1 + 3 - y$; use $x = 6$, $y = -5$, and $z = 2$

17) $6 + q + 5 - (q - p) + 15$; use $p = 1$, and $q = 1$

18) $-3 \div 3(a + c(b + 5) - (-6 + a))$; use $a = 1$, $b = -6$, and $c = -4$

Simplify each expression.

19) $9x + 9 - 1$

20) $10n - 4n$

21) $-9 - 6(-v + 5)$

22) $-10(-8x + 9) - 8x$

23) $1 + 4(2 - 3k)$

24) $-8v + 6(10 + 6v)$

25) $7(1 + 9v) - 8(-5v - 6)$

26) $-10(x - 7) - 7(x + 2)$

27) $-2(-6x - 9) - 4(x + 9)$

28) $9(7k + 8) + 3(k - 10)$

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

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

Lesson 2.1 Skills Practice

OBJECTIVE:
KEY NOTES:

Solve Equations with Rational Coefficients

Solve each equation. Check your work.

1. $\frac{1}{8}x = 5$

2. $\frac{2}{9}w = 24$

3. $\frac{3}{7}k = \frac{12}{35}$

4. $\frac{8}{9}p = \frac{12}{18}$

5. $0.3v = 1.35$

6. $2.5c = 15.75$

7. $-\frac{4}{11}y = -\frac{16}{33}$

8. $\frac{10}{13}n = -\frac{30}{39}$

9. $-0.54 = 0.36m$

10. $-2.3f = 9.2$

11. $-8h = -0.36$

12. $-\frac{1}{8}n = -\frac{2}{7}$

13. $-\frac{16}{19}y = -\frac{20}{38}$

14. $\frac{12}{20}n = -\frac{36}{44}$

15. $-7.56 = 1.26m$

16. $-64.5g = -25.8$

17. $-3.2a = -55.68$

18. $-\frac{15}{28}s = -\frac{9}{10}$

Lesson 2.1 Problem-Solving Practice

Solve Equations with Rational Coefficients

1. RECYCLING The Swiger family recycles about 15 pounds of waste a week. This is $\frac{2}{5}$ of the total waste for the week. How many pounds of waste does the family produce each week?	**2. SCHOOL** Four-ninths of the students at Edison Junior High School walk to school. If 248 students walk to school, how many students attend Edison Junior High School?
3. HEART RATE Melinda's heart beats 15 times during $\frac{1}{6}$ of a minute. At that rate, how many times does her heart beat each minute?	**4. SPACE** The weight of an object on the Moon is one-sixth its weight on Earth. If an object weighs 48 pounds on the Moon, how much does it weigh on Earth?
5. FINANCIAL LITERACY Candace used $\frac{5}{8}$ of her savings to buy a $531.25 laptop. How much did she have in savings before purchasing the laptop?	**6. BOOK FINES** The library charges $0.15 a day for each day a book is late. How many days late is a book if the fine is $2.10?
7. DONATIONS Seven-ninths of the weight of food donated by the Art Club is canned goods. The Art Club donated $362\frac{4}{9}$ pounds of canned goods. How many total pounds did the Art Club donate?	**8. TEXTING** Josiah's cell phone plan allows for a number of minutes of air time for $20.00 a month. Each minute costs $0.02. How many minutes of air time is he allowed?

Lesson 2.2 Skills Practice

OBJECTIVE:
KEY NOTES:

Solve Two-Step Equations

Solve each equation. Check your solution.

1. $3n + 4 = 7$

2. $9 = 2s + 1$

3. $4c - 6 = 2$

4. $-4 = 2t - 2$

5. $3f - 12 = -3$

6. $8 = 4v + 12$

7. $5d - 6 = 9$

8. $2k + 12 = -4$

9. $-5 = 3m - 14$

10. $0 = 8z + 8$

11. $9a - 2 = -2$

12. $-8 + 4s = -16$

13. $-1 = 4 - 5x$

14. $5 = 9 - 2x$

15. $-2x + 12 = 14$

16. $1 - x = 8$

17. $-2 = -x + 4$

18. $11 = 2 - 3x$

19. $12 - 3x = 6$

20. $-6x + 5 = 17$

21. $13 = 18 - 5x$

22. $6x + 2 = 26$

23. $-18 = 4y + 10$

24. $-24 - a = -15$

25. $5z - 17 = 13$

26. $22 = 4 + 6e$

27. $-15 = 2r + 1$

28. $9k - 8 = 10$

29. $-27 = -7 - 4c$

30. $11 = 18 + 7f$

Lesson 2.2 Problem-Solving Practice

Solve Two-Step Equations

1. SHOPPING Jenna bought 5 reams of paper at the store for a total of $21. The tax on her purchase was $1. Solve $5x + 1 = 21$ to find the price for each ream of paper.	**2. CARS** It took Lisa 85 minutes to wash three cars. She spent x minutes on each car and 10 minutes putting everything away. Solve $3x + 10 = 85$ to find how long it took to wash each car.
3. EXERCISE Cole jogged the same distance on Tuesday and Friday, and 8 miles on Sunday, for a total of 20 miles for the week. Solve $2x + 8 = 20$ to find the distance Cole jogged on Tuesday and Friday.	**4. MOVING** Heather has a collection of 26 mugs. When packing to move, she put the same number of mugs in each of the first 4 boxes and 2 mugs in the last box. Solve $4x + 2 = 26$ to find the number of mugs in each of the first four boxes.
5. TELEVISION Burt's parents allow him to watch a total of 10 hours of television per week. This week, Burt is planning to watch several two–hour movies and four hours of sports. Solve $2x + 4 = 10$ to find the number of movies Burt is planning to watch this week.	**6. TRAVEL** Lawrence drives the same distance Monday through Friday commuting to work. Last week, Lawrence drove 25 miles on the weekend, for a total of 60 miles for the week. Solve $5x + 25 = 60$ to find the distance Lawrence drives each day commuting to work.
7. MONEY McKenna had $32 when she got to the carnival. After riding 6 rides, she had $20 left. Solve $32 – 6x = 20$ to find the price for each ride.	**8. GARDENING** Jack has 15 rosebushes. He has the same number of yellow, red, and pink bushes, and 3 multicolored bushes. Solve $3x + 3 = 15$ to find the number of yellow rosebushes Jack has.

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

Lesson 2.3 Skills Practice

OBJECTIVE:
KEY NOTES:

Write Two-Step Equations

Translate each sentence into an equation.

1. Four more than twice a number is 8.

2. Three more than four times a number is 15.

3. Five less than twice a number is 7.

4. One less than four times a number is 11.

5. Seven more than the quotient of a number and 2 is 10.

6. Six less than six times a number is 12.

7. Five less than the quotient of a number and 3 is –7.

8. Seven more than twice a number is 1.

Define a variable. Then write and solve an equation to find each number.

9. The difference between 5 times a number and 3 is 12.

10. Nine more than three times a number is –6.

11. Nine more than the quotient of a number and 4 is 12.

12. Four less than the quotient of a number and 3 is –10.

13. Nine less than six times a number is –15.

14. Three less than the quotient of a number and 6 is 1.

15. Eight more than the quotient of a number and 5 is 3.

16. The difference between twice a number and 11 is –23.

Lesson 2.3 Problem-Solving Practice

Write Two-Step Equations

Define a variable. Then write and solve an equation to solve each problem.

1. CONSTRUCTION Carlos is building a screen door. The height of the door is 1 foot more than twice its width. What is the width of the door if it is 7 feet high?	**2. GEOMETRY** A rectangle has a width of 6 inches and a perimeter of 26 inches. What is the length of the rectangle?
3. EXERCISE Ella swims four times a week at her club's pool. She swims the same number of laps on Monday, Wednesday, and Friday, and 15 laps on Saturday. She swims a total of 51 laps each week. How many laps does she swim on Monday?	**4. SHOPPING** While at the music store, Drew bought 5 CDs, all at the same price. The tax on his purchase was $6, and the total was $61. What was the price of each CD?
5. STUDYING Over the weekend, Koko spent 2 hours on an assignment, and she spent equal amounts of time studying for 4 exams for a total of 16 hours. How much time did she spend studying for each exam?	**6. FOOD** At the market, Meyer buys a bunch of bananas for $0.65 per pound and a frozen pizza for $4.99. The total for his purchase was $6.94, without tax. How many pounds of bananas did Meyer buy?
7. HOME IMPROVEMENT Laura is making a patio in her backyard using paving stones. She buys 44 paving stones and a flowerpot worth $7 for a total of $73. How much did each paving stone cost?	**8. TAXI** A taxi service charges you $1.50 plus $0.60 per minute for a trip to the airport. The distance to the airport is 10 miles, and the total charge is $13.50. How many minutes did the ride to the airport take?

Lesson 2.4 Skills Practice

OBJECTIVE:
KEY NOTES:

Solve Equations with Variables on Each Side

Solve each equation. Check your solution.

1. $3w + 6 = 4w$

2. $a + 18 = 7a$

3. $8c = 5c + 21$

4. $11d + 10 = 6d$

5. $2e = 4e - 16$

6. $7v = 2v - 20$

7. $4n - 6 = 10n$

8. $2y + 27 = 5y$

9. $8h = 6h - 14$

10. $18 - 2g = 4g$

11. $4x - 9 = 6x - 13$

12. $5c - 15 = 2c + 6$

13. $t + 10 = 7t - 14$

14. $8z + 6 = 7z + 4$

15. $2e - 12 = 7e + 8$

16. $9k + 6 = 8k + 13$

17. $2d + 10 = 6d - 10$

18. $-2a - 9 = 6a + 15$

19. $8 - 3k = 3k + 2$

20. $7t - 4 = 10t + 14$

21. $3c - 15 = 17 - c$

22. $14 + 3n = 5n - 6$

23. $3y + 5.2 = 2 - 5y$

24. $10b - 2 = 7b - 7.4$

25. $2m - 2 = 6m - 4$

26. $3g + 5 = 7g + 4$

27. $4s - 1 = 8 - 2s$

28. $9w + 3 = 4w - 9$

29. $6z - 7 = 2z - 2$

30. $3 - a = 4a + 12$

Lesson 2.4 Problem-Solving Practice

Solve Equations with Variables on Each Side

Write and solve an equation to solve each exercise.

1. PLUMBING A1 Plumbing Service charges $35 per hour plus a $25 travel charge for a service call. Good Guys Plumbing Repair charges $40 per hour for a service call with no travel charge. How long must a service call be for the two companies to charge the same amount?	**2. EXERCISE** Mike's Fitness Center charges $30 per month for a membership. All-Day Fitness Club charges $22 per month plus an $80 initiation fee for a membership. After how many months will the total amount paid to the two fitness clubs be the same?
3. SHIPPING The Lone Star Shipping Company charges $14 plus $2 a pound to ship an overnight package. Discount Shipping Company charges $20 plus $1.50 a pound to ship an overnight package. For what weight is the charge the same for the two companies?	**4. MONEY** Deanna and Lise are playing games at the arcade. Deanna started with $15, and the machine she is playing costs $0.75 per game. Lise started with $13, and her machine costs $0.50 per game. After how many games will the two girls have the same amount of money remaining?
5. MONEY The Wayside Hotel charges its guests $1 plus $0.80 per minute for long distance calls. Across the street, the Blue Sky Hotel charges its guests $2 plus $0.75 per minute for long distance calls. Find the length of a call for which the two hotels charge the same amount.	**6. COLLEGE** Duke is a part-time student at Horizon Community College. He currently has 22 credits, and he plans to take 6 credits per semester until he is finished. Duke's friend Kila is also a student at the college. She has 4 credits and plans to take 12 credits per semester. After how many semesters will Duke and Kila have the same number of credits?

Lesson 2.5 Skills Practice

OBJECTIVE:
KEY NOTES:

Solve Multi-Step Equations

Solve each equation. Check your solution.

1. $4(2 + 3c) = 56$

2. $63 = -3(1 - 2n)$

3. $-29 = 5(2a - 1) + 2a$

4. $-g + 2(3 + g) = -4(g + 1)$

5. $7p - (3p + 4) = -2(2p - 1) + 10$

6. $-3(t + 5) + (4t + 2) = 8$

7. $\frac{1}{2}(-4 + 6x) = \frac{1}{3}x + \frac{2}{3}(x + 9)$

8. $-8 - n = -3(2n - 4)$

9. $2\left(\frac{1}{2}q + 1\right) = -3(2q - 1) + 4(2q + 1)$

10. $-4(2 - y) + 3y = 3(y - 4)$

11. HEALTH CLUB Currently, 96 members participate in the morning workout, and this number has been increasing by 2 people per week. Currently, 80 members participate in the afternoon workout, and this number has been decreasing by 3 people per week. In how many weeks will the number of people working out in the morning be double the number of people working out in the afternoon?

12. DISTANCE Two cyclists leave town at the same time on the same road going in the same direction. Cyclist *A* is going 6 miles per hour faster than cyclist *B*. After 8 hours, cyclist *A* has traveled three times the distance as cyclist *B*. Use the equation $24x = 8(x + 6)$ to find how fast cyclist *B* is traveling

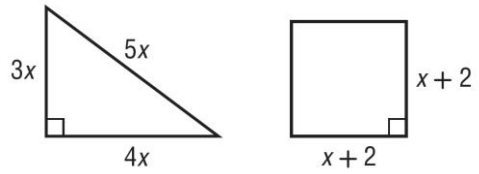
Lesson 2.5 Problem-Solving Practice

Solve Multi-Step Equations

1. AGES Mel is 3 years older than Rahfat and Aurelio is twice as old as Mel. The sum of their ages is 57. How old is Mel?

2. SALES Ye has his own business. He checks his sales receipts three times a day. One day, his afternoon sales were $50 more than his morning sales, and his evening sales were three times his afternoon sales. If his total sales for the day were $1,000, what were his evening sales?

3. POLYGONS The triangle and square shown below have the same perimeter. What is the length of one side of the square?



4. PRESENTS Torrance is buying presents for members of his family. He wants to spend $10 less on his brother than he spends on his sister, and six dollars more than twice the amount he spends on his sister on his mother. If Torrance has $100 to spend, how much does he intend to spend on his brother?

5. NUMBERS Pasha is thinking of a number such that when twice the number is added to three times one more than the number she gets the same result as when she multiplies four times one less than the number. What number is Pasha thinking about?

6. SAVINGS Garland put $2b + 3$ dollars in the bank in the first week. The following week he doubled the first week's savings and put that amount in the bank. The next week he doubled what was in the bank and put that amount in the bank. If he now has $477 in the bank, how much did he put in the bank the first week?

7. FOOD Nendell saw the following sign at a diner. If he bought one of each item and spent $7.50, how much did the drink cost?

Item	Cost ($)
Burger	$3x + 0.05$
Fries	x
Drink	$x + 0.10$

8. WORK Colby worked three more hours on Tuesday than he did on Monday. On Wednesday, he worked one hour more than twice the number of hours that he worked on Monday. If the total number of hours is two more than five times the number of hours worked on Monday, how many hours did he work on Monday?

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 $20=5(-3+x)$

Lesson 3.1 Skills Practice

Constant Rate of Change

OBJECTIVE:
KEY NOTES:

Determine whether the relationship between the two quantities described in each table is linear. If so, find the constant rate of change. If not, explain your reasoning.

1.

Hours Spent Babysitting	Money Earned ($)
1	10
3	30
5	50
7	70

2.

Time (min)	Temperature (°F)
9	60
10	64
11	68
12	72

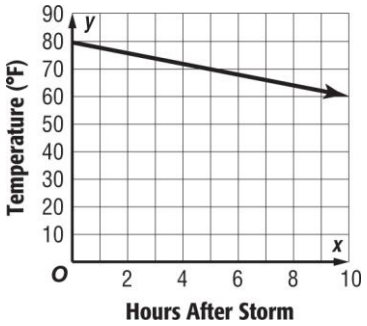
3.

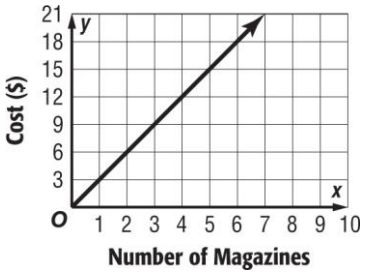
Number of Students	Number of Magazines Sold
10	100
15	110
20	200
25	240

4.

Number of Trees	Number of Apples
5	100
10	120
15	150
20	130

Determine whether a proportional relationship exists between the two quantities shown in each graph. Explain your reasoning.



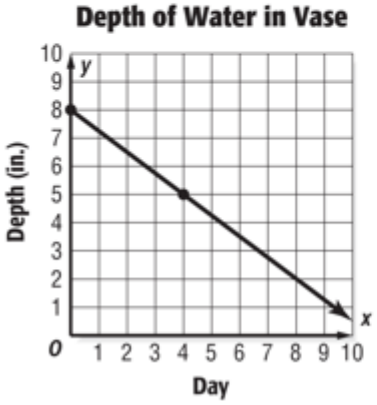


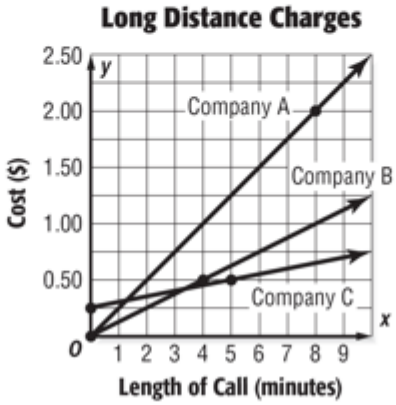
Lesson 3.1 Problem Solving

Constant Rate of Change

FLOWERS For Exercises 1 and 2, use the graph that shows the depth of the water in a vase of flowers over 8 days.

LONG DISTANCE For Exercises 3–6, use the graph that compares the costs of long distance phone calls with three different companies.





1. Find the rate of change for the line.	**2.** Interpret the difference between depth in inches and the day as a rate of change.
3. Interpret the difference between the cost in dollars and the length in minutes for Company A as a rate of change.	**4.** Interpret the difference between the cost in dollars and the length in minutes for Company B as a rate of change.
5. Interpret the difference between the cost in dollars and the length in minutes for Company C as a rate of change.	**6.** Which company charges the least for each additional minute? Explain your reasoning.

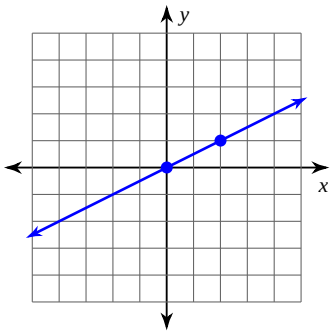
Name_____

Finding Slope From a Graph

Date_____ Period____

Find the slope of each line.

1)



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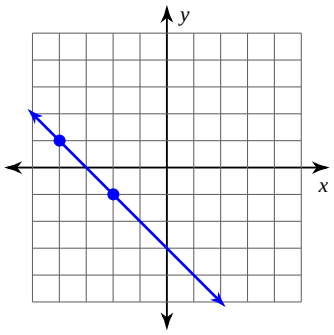

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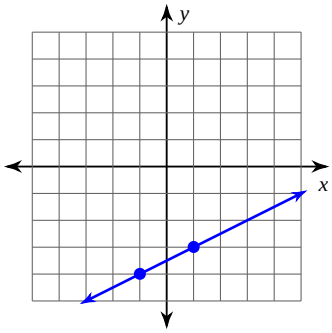

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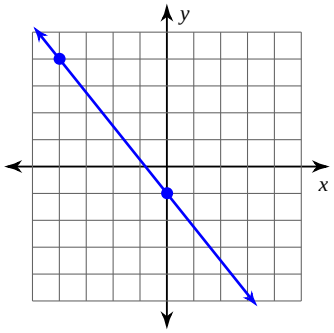

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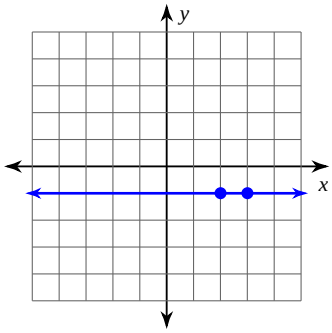

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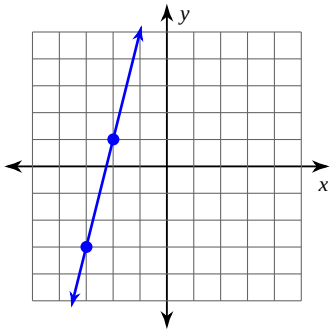

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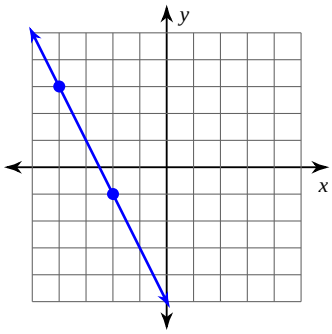

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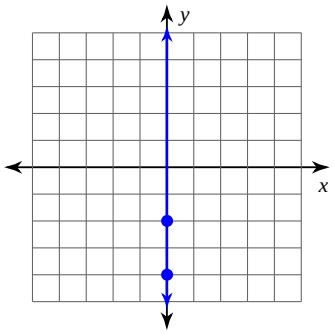

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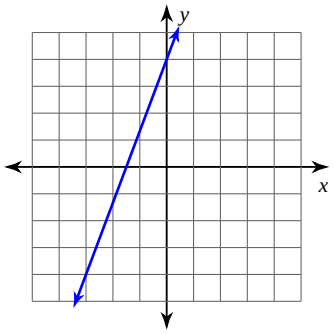

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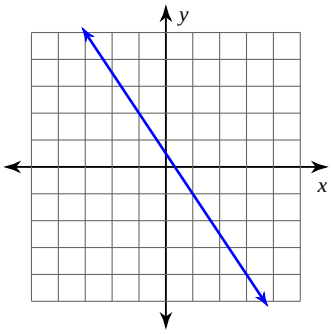

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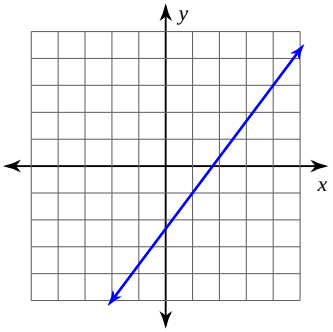

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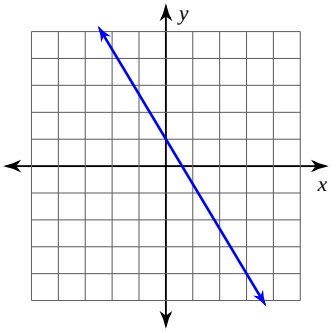

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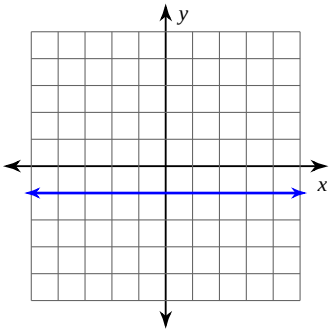

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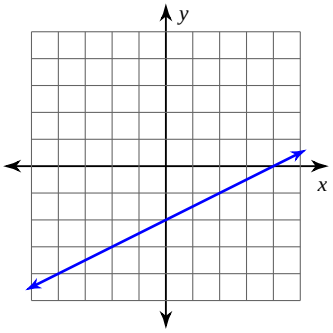

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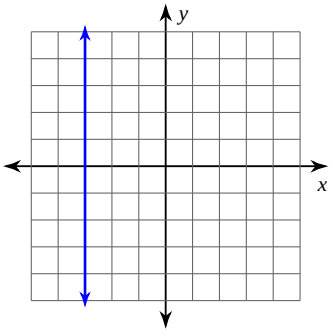
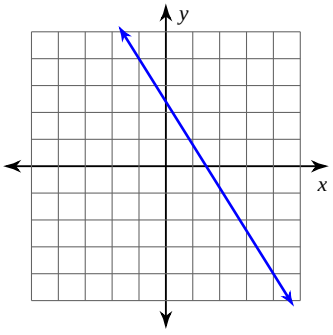


16)



 Name_____

Finding Slope From an Equation

Date_____ Period____

Find the slope of each line.

1) $y = -\frac{5}{2}x - 5$

2) $y = -\frac{4}{3}x - 1$

3) $y = -x + 3$

4) $y = -4x - 1$

5) $2x - y = 1$

6) $x + 2y = -8$

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

8) $4x + 5y = -10$

9) $x - y = -2$

10) $4x - 3y = 9$

11) $3x + 2y = 6$

12) $4x - 5y = 0$

13) $y = -1$

14) $x + 5y = -15$

15) $-2y - 10 + 2x = 0$

16) $x + 5 + y = 0$

17) $3x + 20 = -4y$

18) $-15 - x = -5y$

19) $-1 = -2x + y$

20) $-x - 1 = y$

21) $0 = 5y - x$

22) $-30 + 10y = -2x$

Lesson 3.2 Skills Practice

OBJECTIVE:
KEY NOTES:

Slope

Find the slope of the line that passes through each pair of points.

1. $A(-2, -4)$, $B(2, 4)$

2. $C(0, 2)$, $D(-2, 0)$

3. $E(3, 4)$, $F(4, -2)$

4. $G(-3, -1)$, $H(-2, -2)$

5. $I(0, 6)$, $J(-1, 1)$

6. $K(0, -2)$, $L(2, 4)$

7. $O(1, -3)$, $P(2, 5)$

8. $Q(1, 0)$, $R(3, 0)$

9. $S(0, 4)$, $T(1, 0)$

10. $U(1, 3)$, $V(1, 5)$

11. $W(2, -2)$, $X(-1, 1)$

12. $Y(-5, 0)$, $Z(-2, -4)$

13. $A(2, -1)$, $B(-4, -4)$

14. $C(-2, 2)$, $D(-4, 2)$

15. $E(-1, -4)$, $F(-3, 0)$

16. $G(7, 4)$, $H(2, 0)$

17. $K(2, -2)$, $L(2, -3)$

18. $M(-1, -1)$, $N(-4, -5)$

19. $O(5, -3)$, $P(-3, 4)$

20. $Q(-1, -3)$, $R(1, 2)$

21. $W(3, 25)$, $X(1, 1)$

22. $Y(2, 2)$, $Z(-5, -4)$

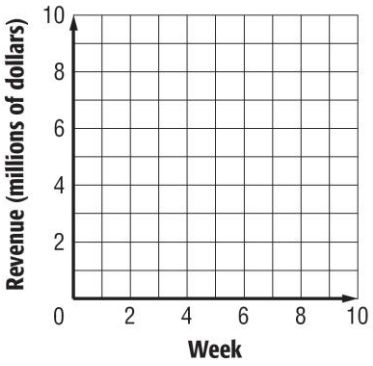
23. $C(0, -2)$, $D(3, -2)$

24. $G(-3, 5)$, $H(-3, 2)$

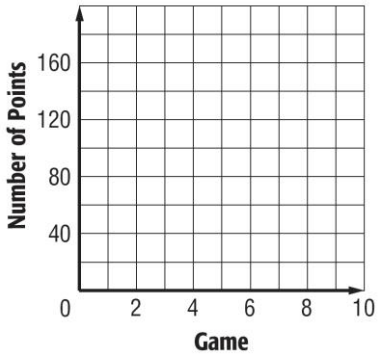
Lesson 3.2 Problem-Solving Practice

Slope

1. MOVIES By the end of its first week, a movie had grossed \$2.3 million. By the end of its sixth week, it had grossed \$6.8 million. Graph the data with the week on the horizontal axis and the revenue on the vertical axis, and draw a line through the points. Then find and interpret the slope of the line.

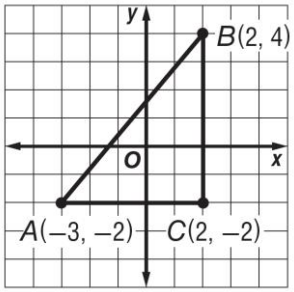


2. BASKETBALL After Game 1, Felicia had scored 14 points. After Game 5, she had scored a total of 82 points for the season. After Game 10, she had scored 129 points. Graph the data with the game number on the horizontal axis and the number of points on the vertical axis. Connect the points using two different line segments.



3. BASKETBALL Find the slope of each line segment in your graph from Exercise 2 and interpret it. Which part of the graph shows the greater rate of change? Explain.

4. GEOMETRY The figure shows triangle *ABC* plotted on a coordinate plane. Explain how to find the slope of the line through points *A* and *B*. Then find the slope.



5. Use the figure in Exercise 4. What is the slope of the line through points *A* and *C*? How do you know?

6. Use the figure in Exercise 4. What is the slope of the line through points *B* and *C*? How do you know?

Finding Slope From Two Points

Date_____ Period____

Find the slope of the line through each pair of points.

1) $(19, -16), (-7, -15)$

2) $(1, -19), (-2, -7)$

3) $(-4, 7), (-6, -4)$

4) $(20, 8), (9, 16)$

5) $(17, -13), (17, 8)$

6) $(19, 3), (20, 3)$

7) $(3, 0), (-11, -15)$

8) $(19, -2), (-11, 10)$

9) $(6, -10), (-15, 15)$

10) $(12, -18), (-15, -18)$

11) $(3, -20), (5, 8)$

12) $(15, 8), (-17, 9)$

13) $(-19, 12), (-9, 1)$

14) $(12, 2), (-7, 5)$

15) $(6, -12), (15, -3)$

16) $(9, 3), (19, -17)$

Lesson 3.3 Skills Practice

OBJECTIVE:
KEY NOTES:

Equations in y = mx Form

For Exercises 1–3, determine whether each linear function is a direct variation. If so, state the constant of variation.

1.

Price, *x*	$5	$10	$15	$20
Tax, *y*	$0.41	$0.82	$1.23	$1.64

2.

Hours, *x*	11	12	13	14
Distance, *y* (miles)	154	167	180	193

3.

Age, *x*	8	9	10	11
Grade, *y*	3	4	5	6

For Exercises 4–12, *y* varies directly with *x*. Write an equation for the direct variation. Then find each value.

4. If $y = 8$ when $x = 3$, find y when $x = 45$.

5. If $y = -4$ when $x = 10$, find y when $x = 2$.

6. If $y = 27$ when $x = 8$, find y when $x = 11$.

7. Find y when $x = 12$, if $y = 2$ when $x = 5$.

8. Find y when $x = 3$, if $y = -4$ when $x = -9$.

9. Find y when $x = -6$, if $y = 15$ when $x = -5$.

10. If $y = 20$ when $x = 8$, what is the value of x when $y = -2$?

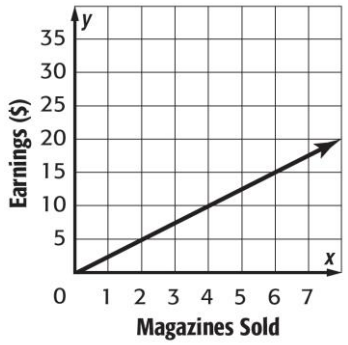
11. If $y = -30$ when $x = 15$, what is the value of x when $y = 60$?

12. If $y = 42$ when $x = 15$, what is the value of x when $y = 70$?

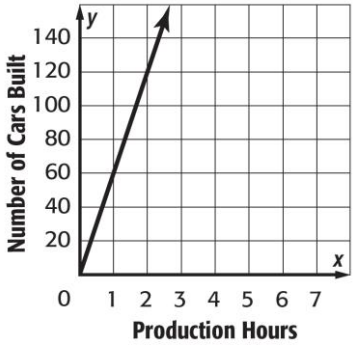
Lesson 3.3 Problem-Solving Practice

Equations in y = mx Form

1. JOBS The amount Candice earns varies directly with the number of magazines she sells. How much does Candice earn for each magazine sale?



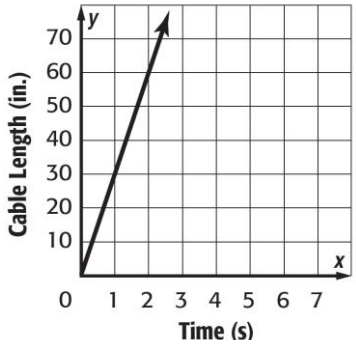
2. MANUFACTURING The number of cars built varies directly as the number of hours the production line operates. What is the ratio of cars built to hours of production?



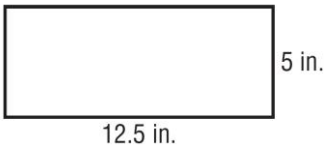
3. DRIVING A car drives 283.5 miles in 4.5 hours. Assuming that the distance traveled varies directly with the time traveled, how far will the car travel in 7 hours?

4. MEASUREMENT The number of kilograms that an object weighs varies directly as the number of pounds. If an object that weighs 45 kilograms weighs about 100 pounds, about how many kilograms is an object that weighs 70 pounds?

5. RECORDING The amount of cable that is wound on a spool varies directly with the amount of time that passes. Determine the speed at which the cable moves.



6. GEOMETRY The width of a rectangle varies directly as its length. What is the perimeter of a rectangle that is 15 inches long?



Lesson 3.4 Skills Practice

OBJECTIVE:
KEY NOTES:

Slope-Intercept Form

State the slope and the *y*-intercept for the graph of each equation.

1. $y = x + 4$

2. $y = 2x - 2$

3. $y = 3x - 1$

4. $y = -x + 3$

5. $y = \frac{1}{2}x - 5$

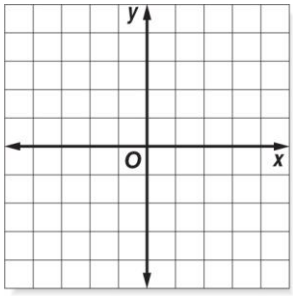
6. $y = -\frac{1}{3}x + 4$

7. $y - 2x = -1$

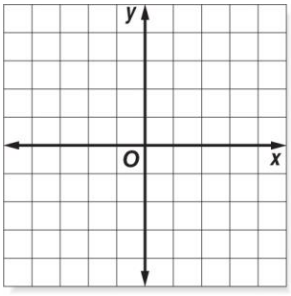
8. $y + 4x = 2$

9. $y = -\frac{3}{2}x - 3$

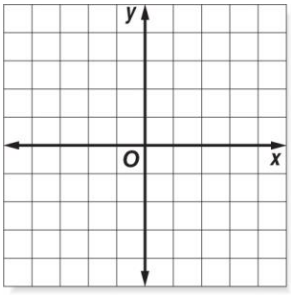
10. Graph a line with a slope of 1 and a *y*-intercept of –4.



11. Graph a line with a slope of 2 and a *y*-intercept of –3.

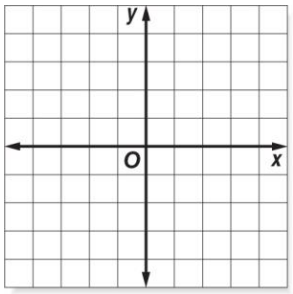


12. Graph a line with a slope of $\frac{1}{3}$ and a *y*-intercept of 1.

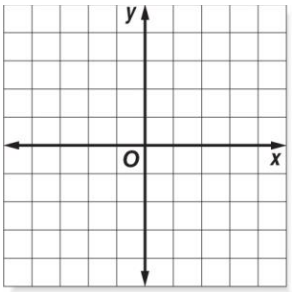


Graph each equation using the slope and the *y*-intercept.

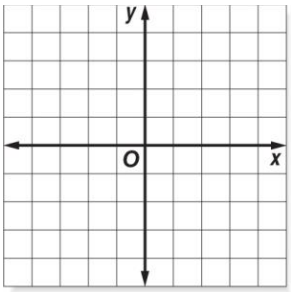
13. $y = 3x - 3$



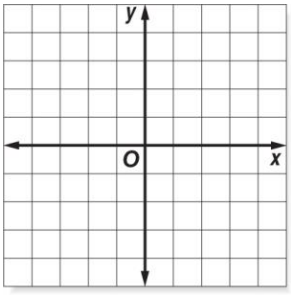
14. $y = -x + 1$



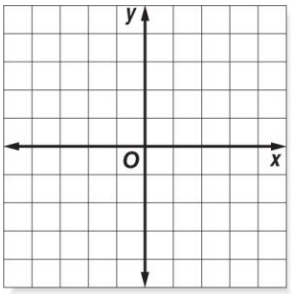
15. $y = \frac{1}{2}x - 2$



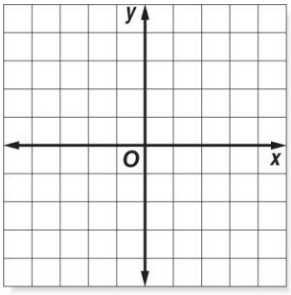
16. $y = 4x - 2$



17. $y = -\frac{3}{2}x + 1$



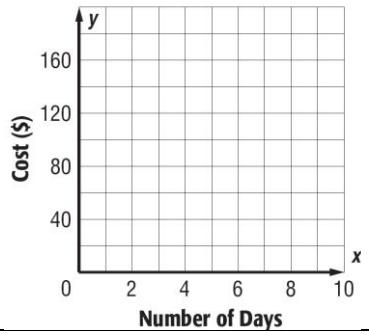
18. $y = \frac{2}{3}x - 3$



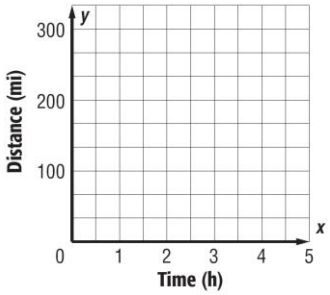
Lesson 3.4 Problem-Solving Practice

Slope-Intercept Form

CAR RENTAL For Exercises 1 and 2, use the following information. Ace Car Rentals charges $20 per day plus a $10 service charge to rent one of its compact cars. The total cost can be represented by the equation $y = 20x + 10$, where x is the number of days and y is the total cost.

1. Graph the equation. What do the slope and *y*-intercept represent?  	**2.** Explain how to use your graph to find the total cost of renting a compact car for 7 days. Then find this cost.

TRAVEL For Exercises 3 and 4, use the following information. Thomas is driving from Oak Ridge to Lakeview, a distance of 300 miles. He drives at a constant 60 miles per hour. The equation for the distance yet to go is $y = 300 – 60x$, where x is the number of hours since he left.

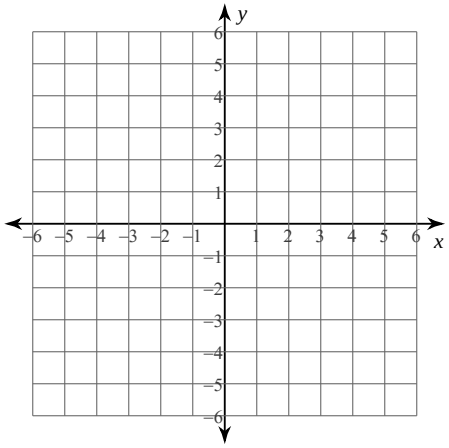
3. What is the slope and *y*-intercept? Explain how to use the slope and *y*-intercept to graph the equation. Then graph the equation.  	**4.** Explain how to find the total travel time. Then find this time.
5. WEATHER The equation $y = 0.2x + 3.5$ can be used to find the amount of accumulated snow y in inches x hours after 5 P.M. on a certain day. Identify the slope and *y*- intercept of the graph of the equation and explain what each represents.	**6. SALARY** Janette's weekly salary can be represented by the equation $y = 500 + 0.4x$, where x is the dollar total of her sales for the week. Identify the slope and *y*-intercept of the graph of the equation and explain what each represents.

Graphing Lines in Slope-Intercept Form

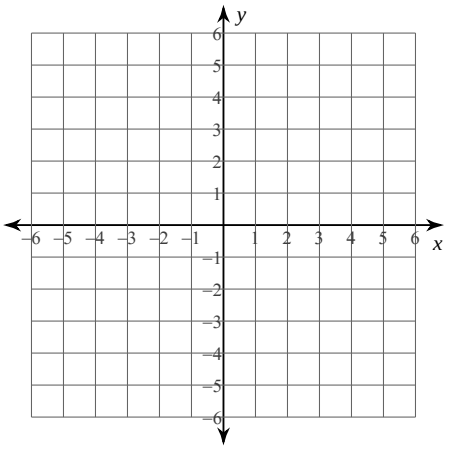
Date_____ Period____

Sketch the graph of each line.

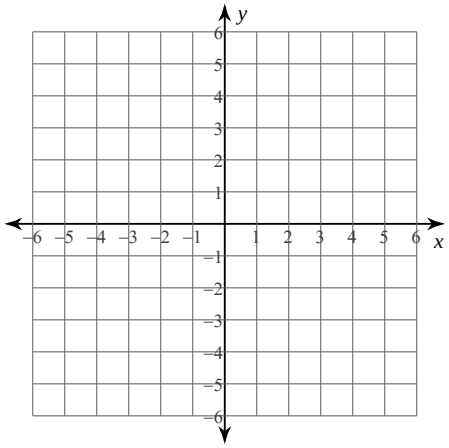
1) $y = \frac{1}{4}x - 1$



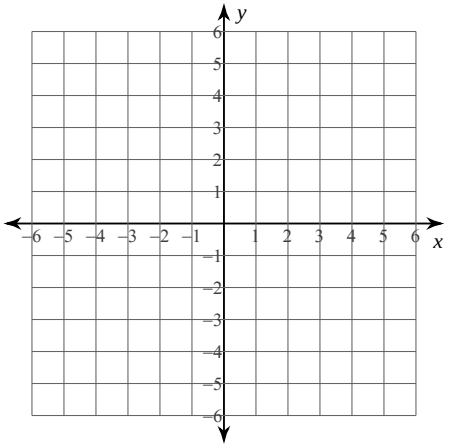
2) $y = -x + 2$



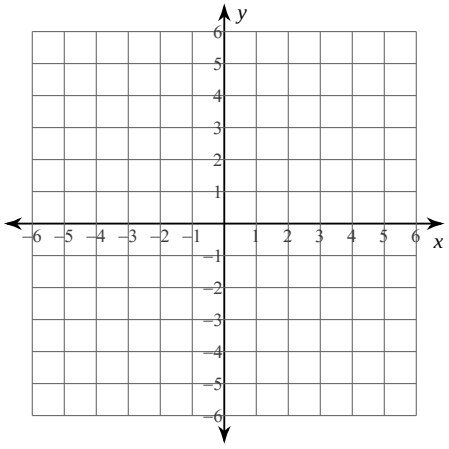
3) $y = x + 1$



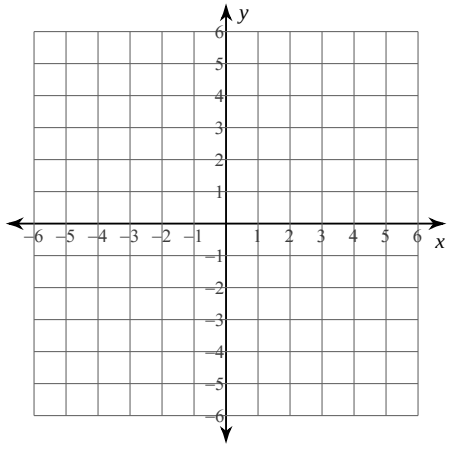
4) $y = \frac{4}{3}x - 4$



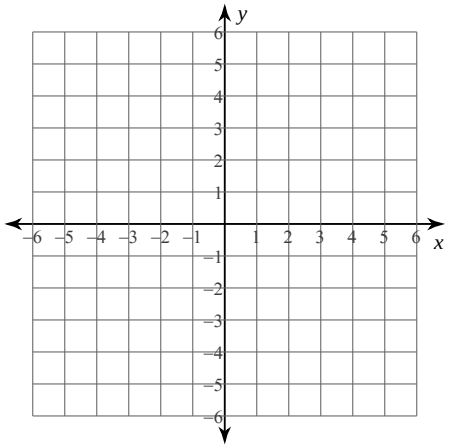
5) $y = -3x - 3$



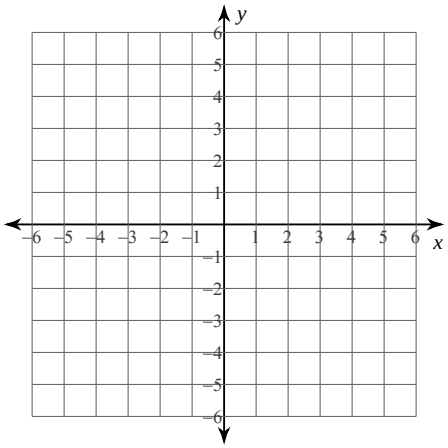
6) $y = 4$



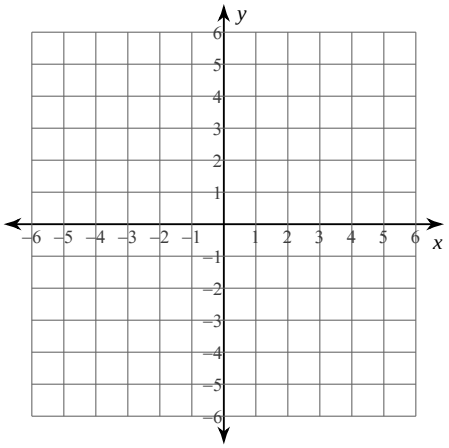
7) $y = \frac{3}{5}x - 1$



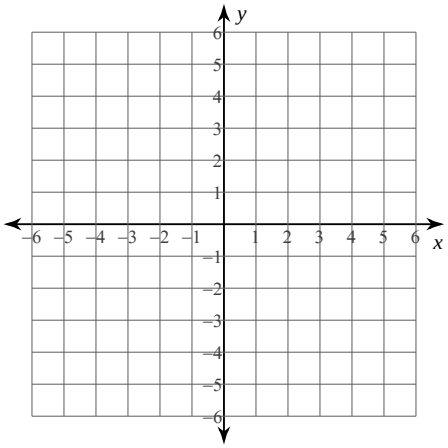
8) $x = 5$



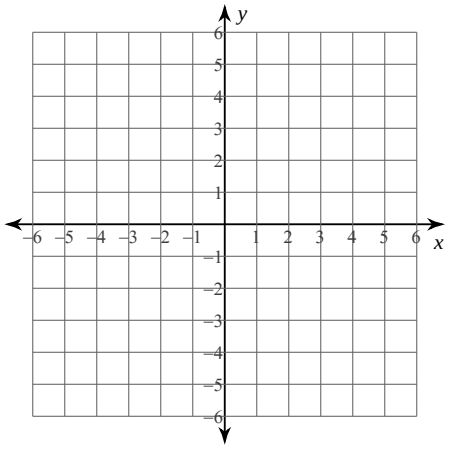
9) $y = 3$



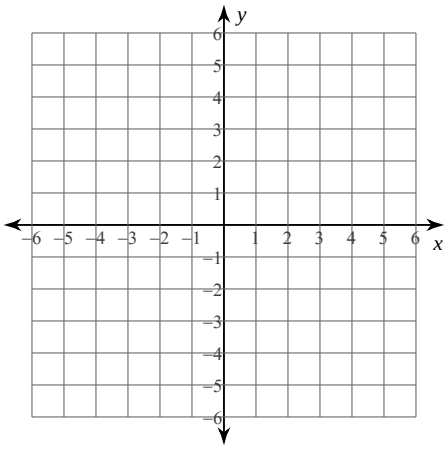
10) $y = 3x - 2$



11) $y = 4x + 3$



12) $y = \frac{6}{5}x + 5$



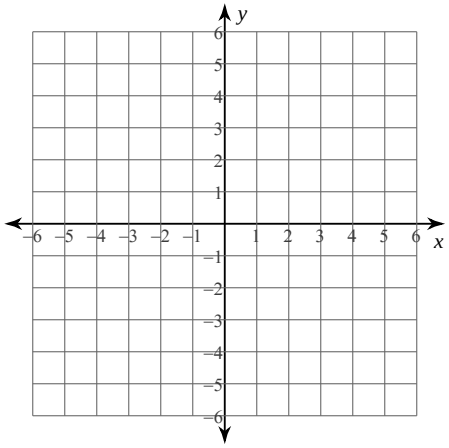
Name_____

Graphing Lines

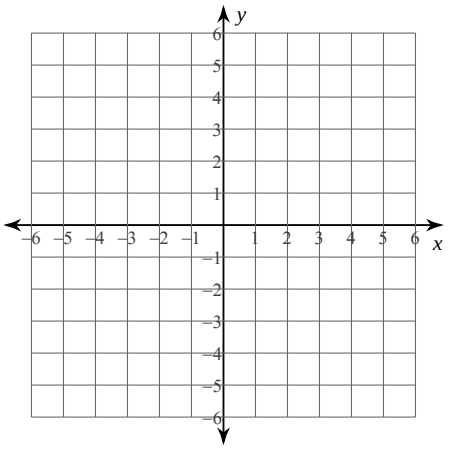
Date_____ Period____

Sketch the graph of each line.

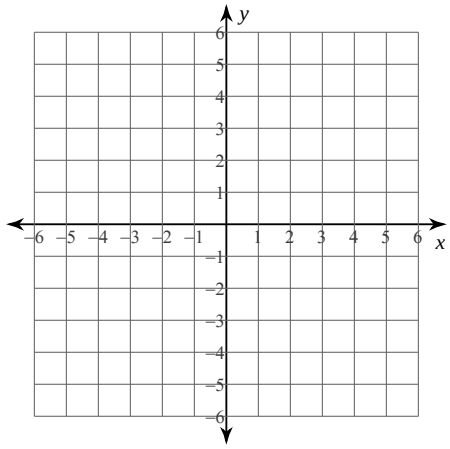
1) $y = \frac{7}{2}x - 2$



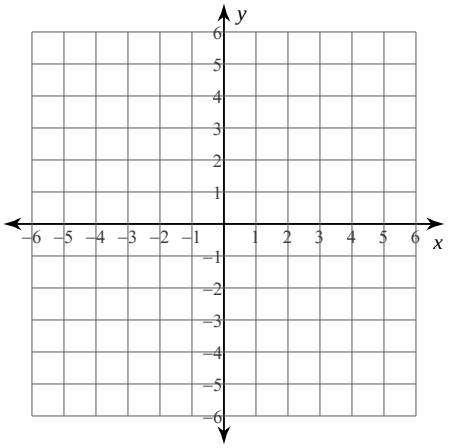
2) $y = -6x + 3$



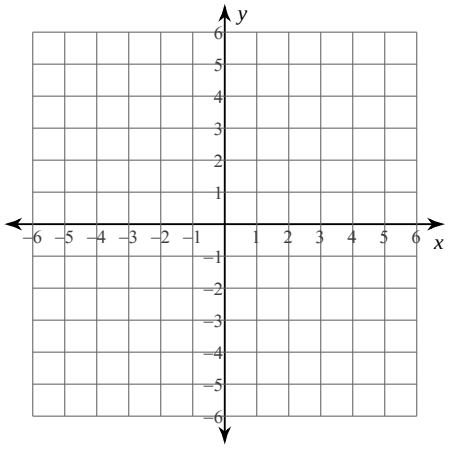
3) $y = -5$



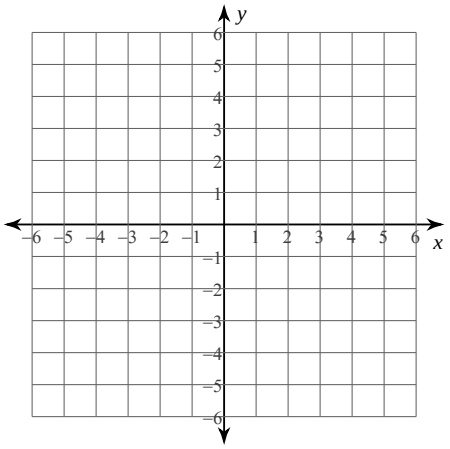
4) $y = \frac{6}{5}x + 1$



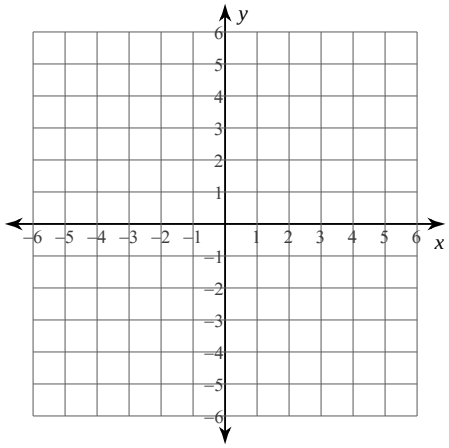
5) $y = \frac{1}{4}x + 2$



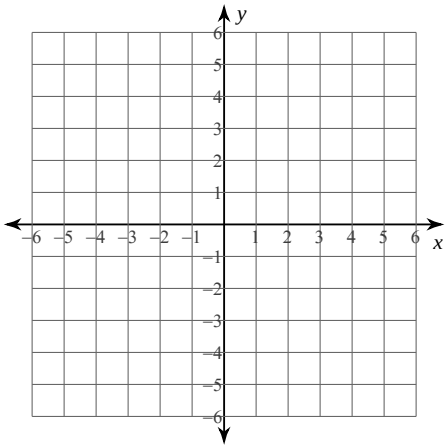
6) $x = 5$



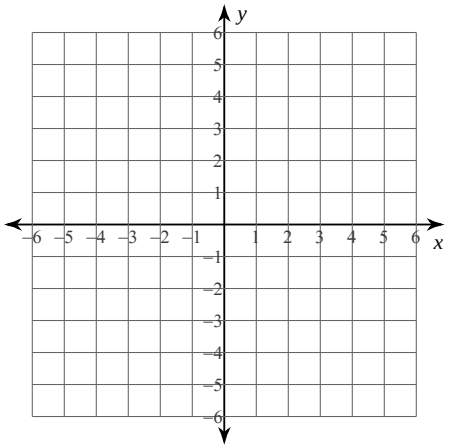
7) $y = \frac{5}{3}x$



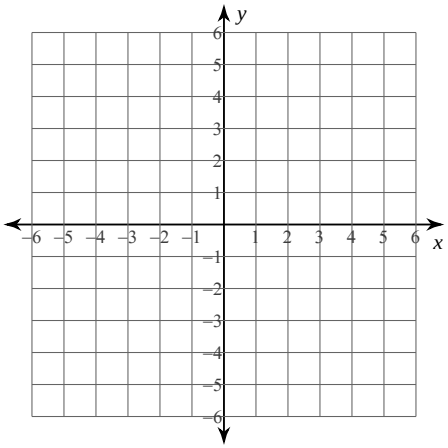
8) $x = 0$



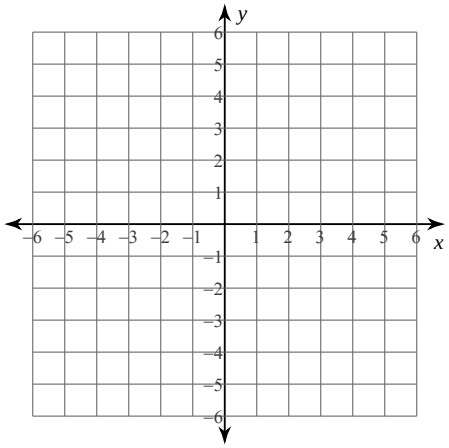
9) $y = -\frac{1}{3}x + 3$



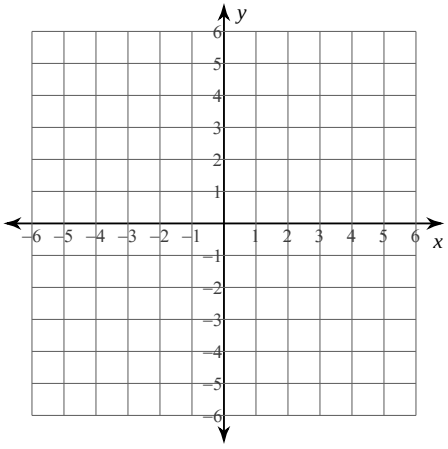
10) $y = \frac{1}{5}x - 4$



11) $y = \frac{1}{2}x - 2$



12) $y = 2x + 5$



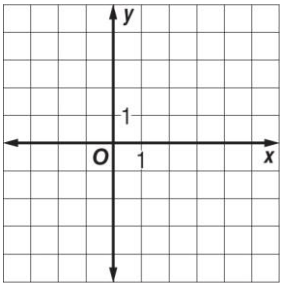
Lesson 3.5 Skills Practice

OBJECTIVE:
KEY NOTES:

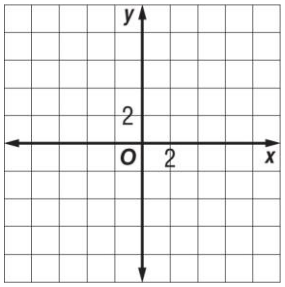
Graph a Line Using Intercepts

State the *x*- and *y*-intercepts of each function. Then graph the function.

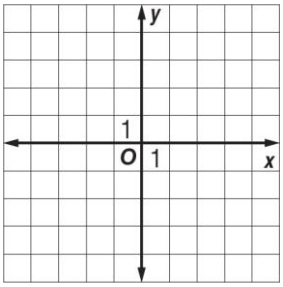
1. $3x - 5y = 15$



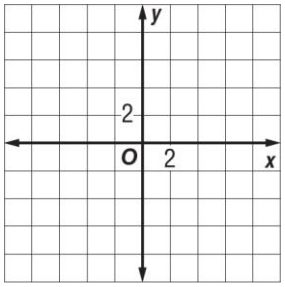
2. $-\frac{1}{2}x + 3y = -3$



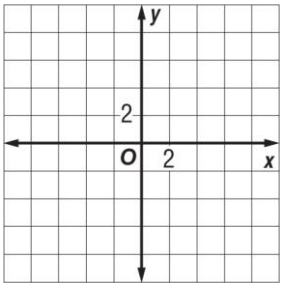
3. $4x - 6y = 12$



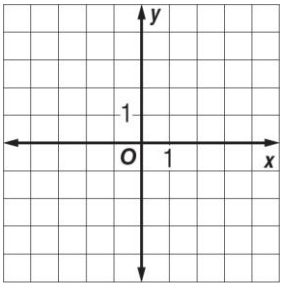
4. $7x + 3y = -21$



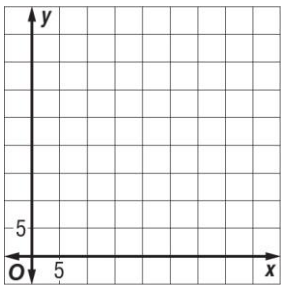
5. $\frac{2}{3}x - \frac{1}{3}y = 2$



6. $-x + y = -2$



7. DRINKS Ms. Purdy bought coffee and orange juice for her coworkers in her office. She bought *x* cups of coffee at \$2 per cup and *y* cups of orange juice at \$1.50 per cup. Altogether she spent \$30. This can be represented by the function $2x + 1.5y = 30$. Graph the function. Then interpret the *x*- and *y*-intercepts.



Lesson 3.5 Problem-Solving Practice

Graph a Line Using Intercepts

1. FOOTBALL Tyrell plays running back and kicks field goals for his team. He scores 6 points for a touchdown and 3 points for a field goal. In his last game, he scored 24 points. This can be represented by the function $6x + 3y = 24$. Find the *x*- and *y*-intercepts. Interpret the *x*- and *y*-intercepts.

2. GARDENING Mr. Bigelow's garden is a rectangle with dimensions *x* feet long by *y* feet wide. Its perimeter is 70 feet.

a. Write a function to represent the perimeter of his garden.

b. What are the *x*- and *y*-intercepts of the function?

c. Does either intercept make sense as a solution for this situation? Explain.

3. SCHOOL DANCE The sign below indicates the cost of attending the big dance. In all, \$320 was made. This can be represented by the function $2x + 5y = 320$. Find the *x*- and *y*-intercepts. What do they represent?

Dance Ticket Prices	
Fr./Soph.	\$2
Jr./Sr.	\$5

4. CONSTRUCTION Jack bought *x* picks costing \$30 each and *y* shovels costing \$40 each. In all he spent \$240.

a. Write a function to represent this situation.

b. What are the *x*- and *y*-intercepts of the function?

c. What do the intercepts represent?

5. BRICKS Jarrod is putting in a sidewalk using two different style bricks. One style brick is 8 inches long and he intends to use *x* of these bricks. The other style brick is 6 inches long and he intends to use *y* of these. His sidewalk is to be 288 inches long.

a. Write a function to represent this situation.

b. What are the *x*- and *y*-intercepts of the function? What do they represent?

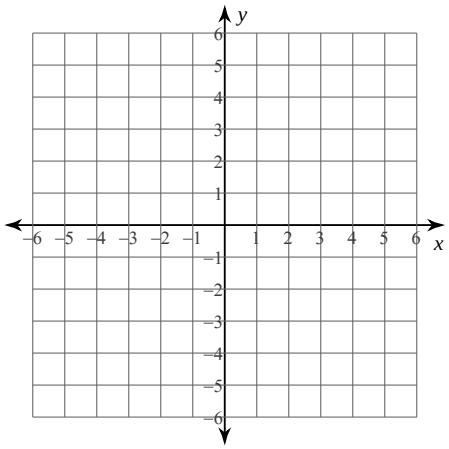
 Name_____

Graphing Lines in Standard Form

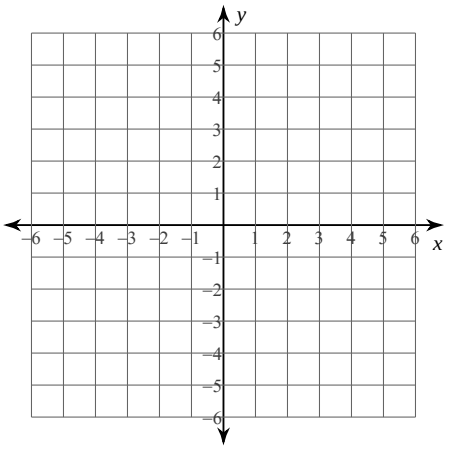
Date_____ Period____

Sketch the graph of each line.

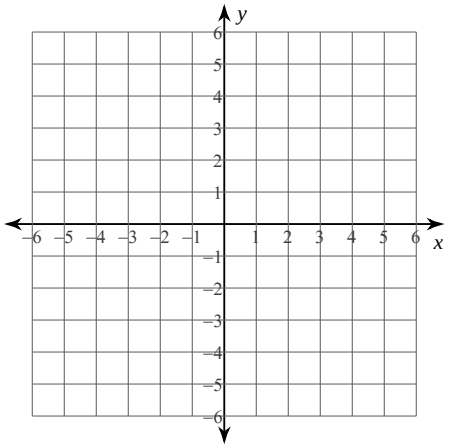
1) $4x + y = 0$



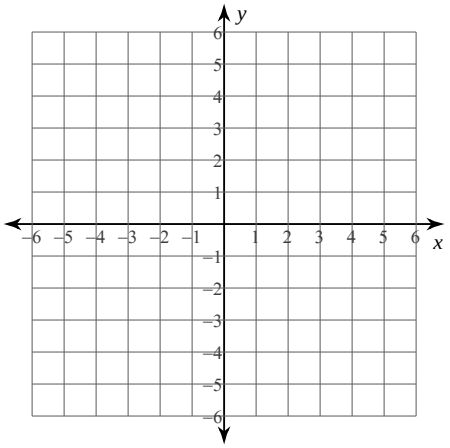
2) $10x - 3y = -15$



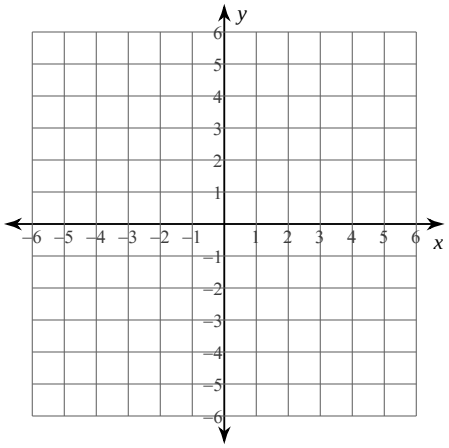
3) $x + y = -3$



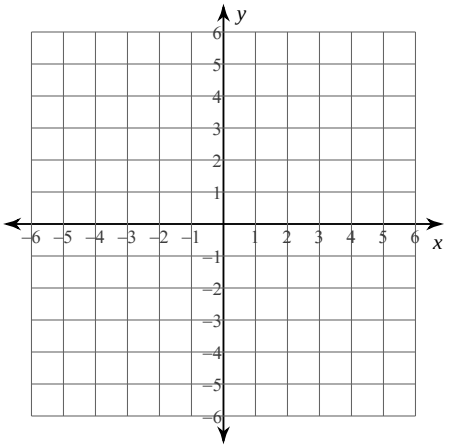
4) $x = 5$



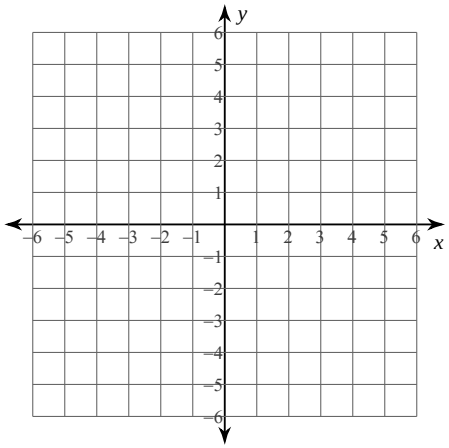
5) $7x + 2y = -10$



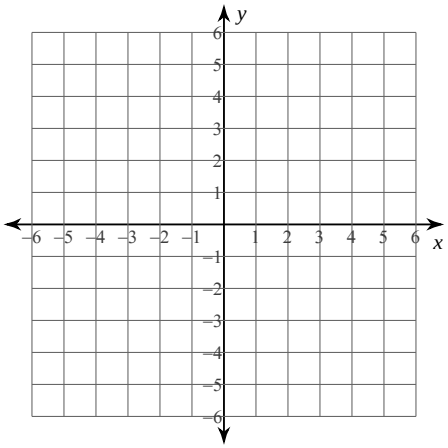
6) $x - 2y = -6$



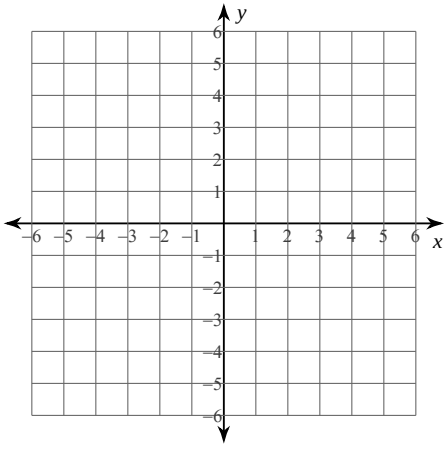
7) $x + y = 0$



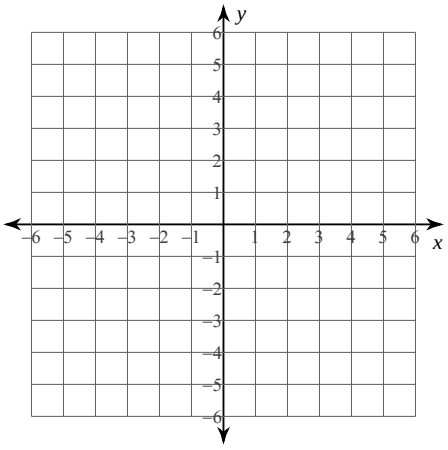
8) $9x + y = 4$



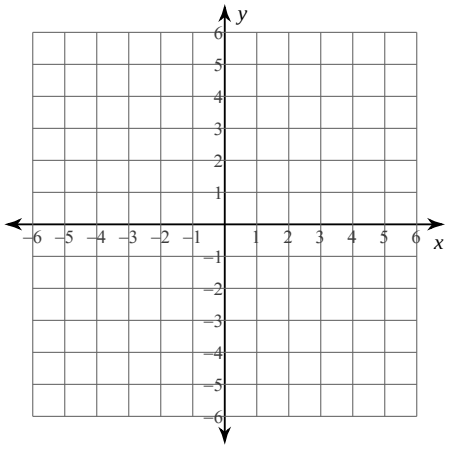
9) $y = 5$



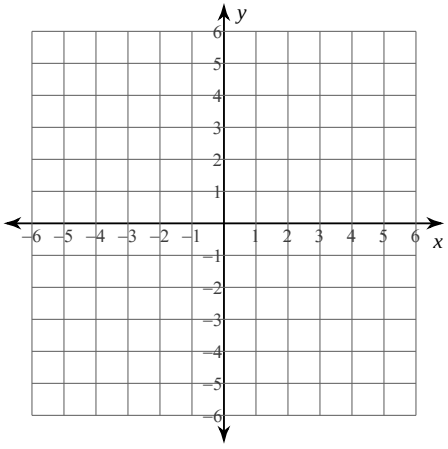
10) $x + 4y = -12$



11) $x - 3y = 3$



12) $x + y = 4$



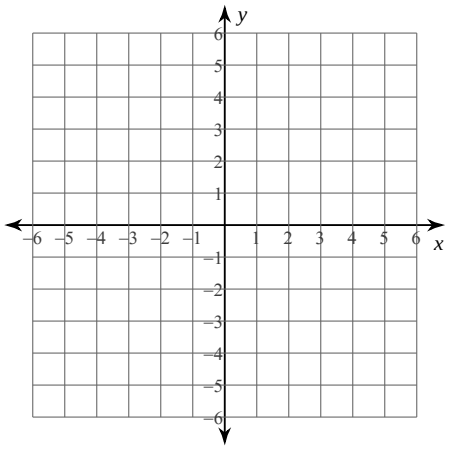
Name_____

Graphing Lines

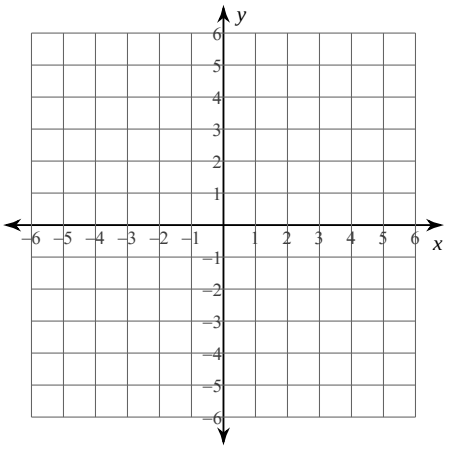
Date_____ Period____

Sketch the graph of each line.

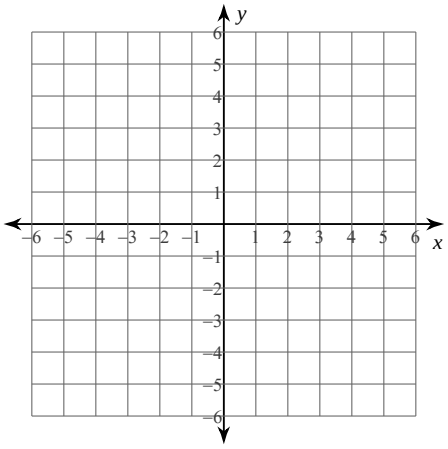
1) $7x + y = 5$



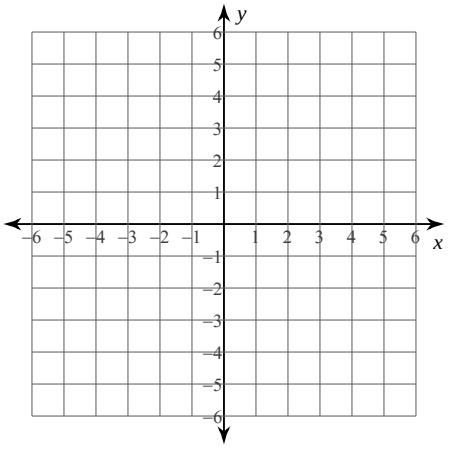
2) $3x + 5y = -5$



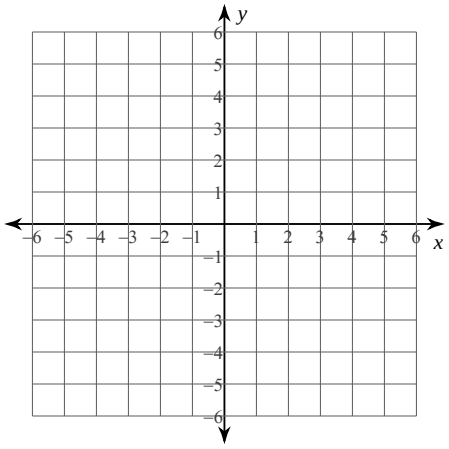
3) $y = 4$



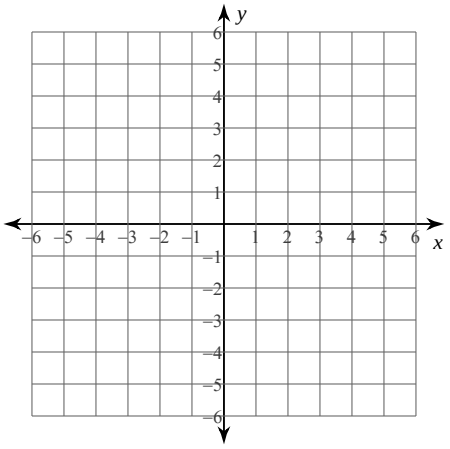
4) $6x + 5y = 20$



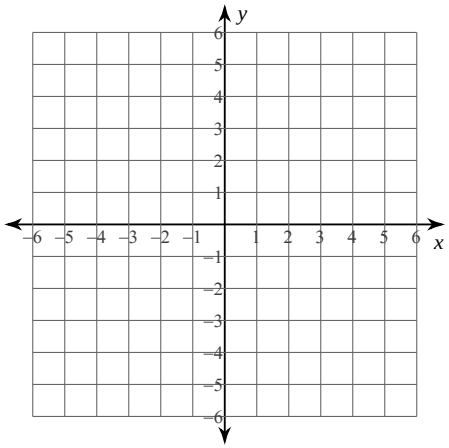
5) $x = -3$



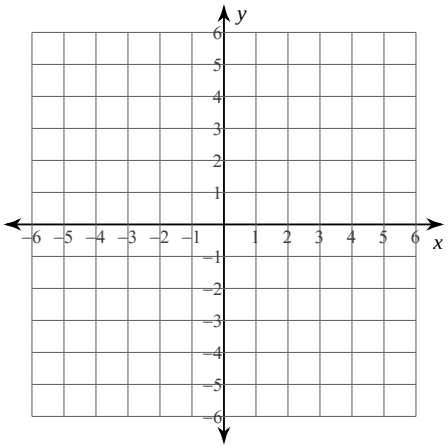
6) $2x + y = 4$



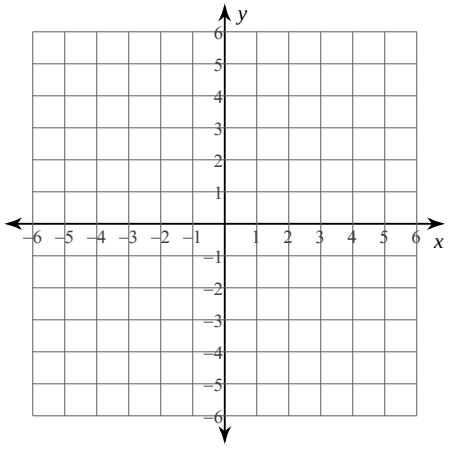
7) $x + y = 3$



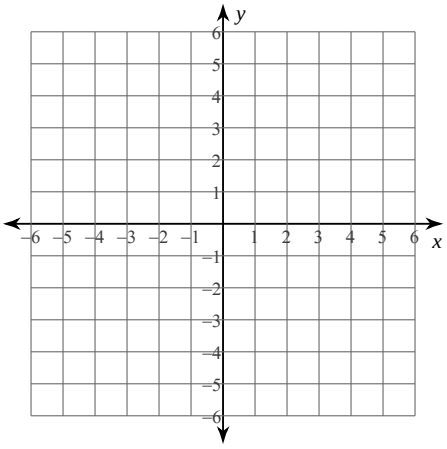
8) $10x - 3y = 15$



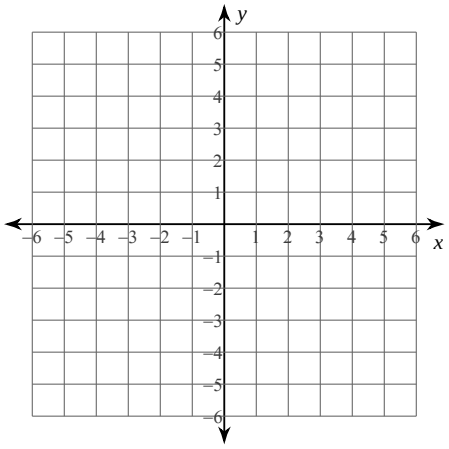
9) $x - y = 3$



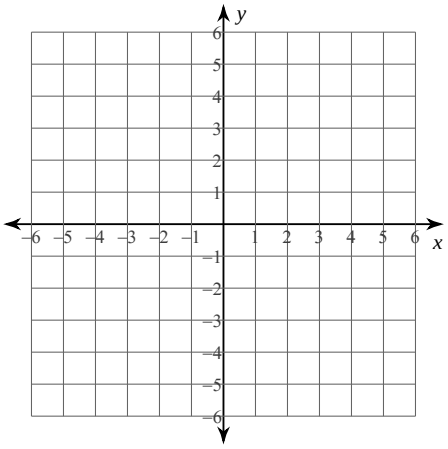
10) $y = 0$



11) $x + y = -3$



12) $x + y = -1$



Lesson 3.6 Skills Practice

OBJECTIVE:
KEY NOTES:

Write Linear Equations

Write an equation in point-slope form and slope-intercept form for each line.

1. passes through (4, 7), slope = 2

2. passes through (–2, –1), slope = 4

3. passes through (8, –4), slope = $\frac{1}{2}$

4. passes through (1, –3), slope = –1

5. passes through (–4, –5), slope = $-\frac{3}{4}$

6. passes through (3, –8), slope = 3

7. passes through (2, –7), slope = 3

8. passes through (–1, –6), slope = –4

Lesson 3.6 Problem-Solving Practice

Write Linear Equations

1. BANQUETS The Soccer Banquet committee has found that 2 trays of lasagna will serve 15 people and 4 trays of lasagna will serve 30 people. Write an equation in point-slope form to represent the number of people y that can be served with x trays of lasagna.

2. CONCERT The cost for one ticket to a jazz concert is $7.50. Two tickets cost $15. Write an equation in point-slope form to represent the total cost y for x tickets.

3. TENNIS The table shows the cost of tennis lessons. Write an equation in point-slope form to represent the cost y of x tennis lessons.

Number of Lessons	Cost ($)
5	100
10	150

4. DOWNLOADS It took 35 seconds for 5 songs to download to Rebecca's computer. The next day, it took 42 seconds for 6 songs to download. Write an equation in point-slope form to represent the time y it took to download x songs.

5. TRAVEL After 3 hours of driving, Elyse is 183 miles away from home. After 5 hours of driving, she is 305 miles from home. Write an equation in point-slope form to determine her distance y from home after x hours.

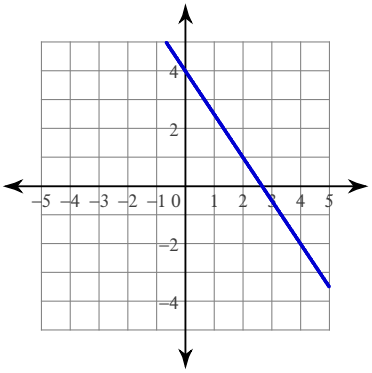
 Name_____

Writing Linear Equations

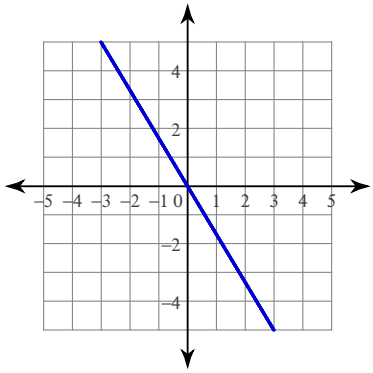
Date_____ Period____

Write the slope-intercept form of the equation of each line.

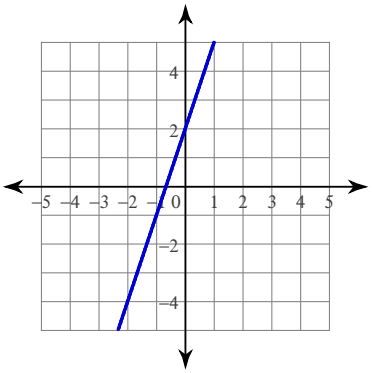
1)



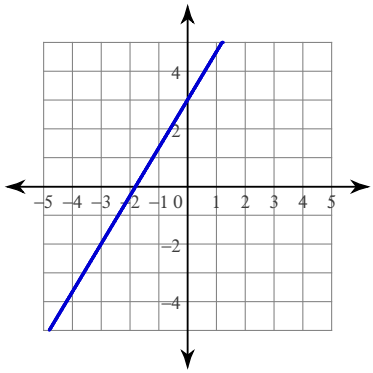
2)



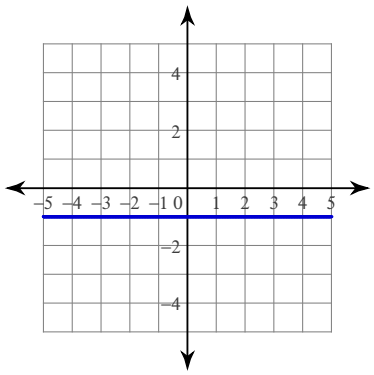
3)



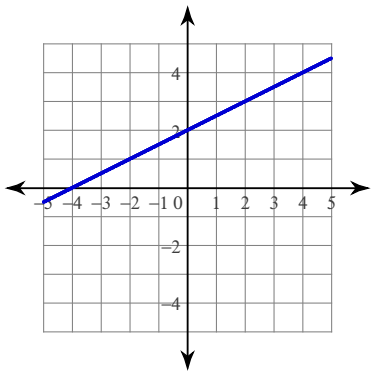
4)



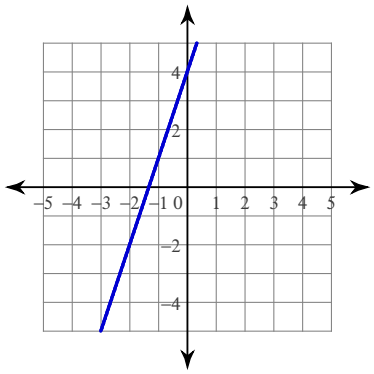
5)



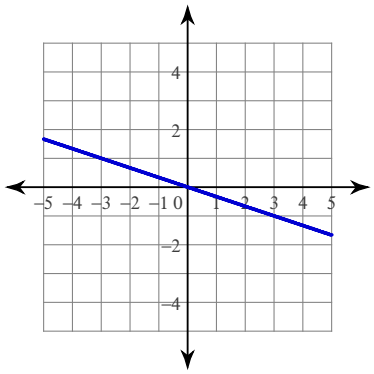
6)



7)



8)



Writing Linear Equations

Date_____ Period____

Write the slope-intercept form of the equation of each line.

1) $3x - 2y = -16$

2) $13x - 11y = -12$

3) $9x - 7y = -7$

4) $x - 3y = 6$

5) $6x + 5y = -15$

6) $4x - y = 1$

7) $11x - 4y = 32$

8) $11x - 8y = -48$

Write the standard form of the equation of the line through the given point with the given slope.

9) through: $(1, 2)$, slope = 7

10) through: $(3, -1)$, slope = -1

11) through: $(-2, 5)$, slope = -4

12) through: $(3, 5)$, slope = $\frac{5}{3}$

13) through: $(2, -4)$, slope = -1

14) through: $(2, 5)$, slope = undefined

15) through: $(3, 1)$, slope = $\frac{1}{2}$

16) through: $(-1, 2)$, slope = 2

Write the point-slope form of the equation of the line described.

17) through: $(4, 2)$, parallel to $y = -\frac{3}{4}x - 5$

18) through: $(-3, -3)$, parallel to $y = \frac{7}{3}x + 3$

19) through: $(-4, 0)$, parallel to $y = \frac{3}{4}x - 2$

20) through: $(-1, 4)$, parallel to $y = -5x + 2$

21) through: $(2, 0)$, parallel to $y = \frac{1}{3}x + 3$

22) through: $(4, -4)$, parallel to $y = -x - 4$

23) through: $(-2, 4)$, parallel to $y = -\frac{5}{2}x + 5$

24) through: $(-4, -1)$, parallel to $y = -\frac{1}{2}x - 1$

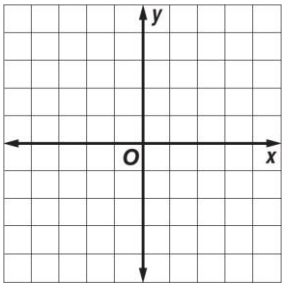
Lesson 3.7 Skills Practice

OBJECTIVE:
KEY NOTES:

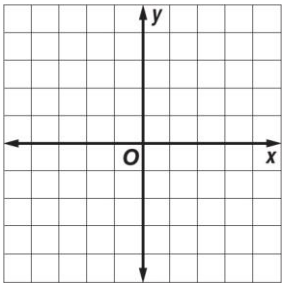
Solve Systems of Equations by Graphing

Solve each system of equations by graphing.

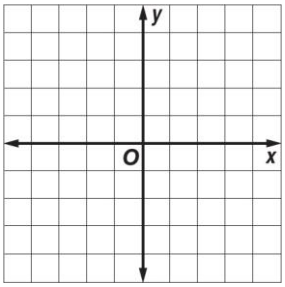
1. $y = x + 4$
$y = -2x - 2$



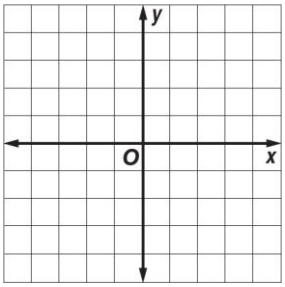
2. $y = 5x - 1$
$y = 5x + 10$



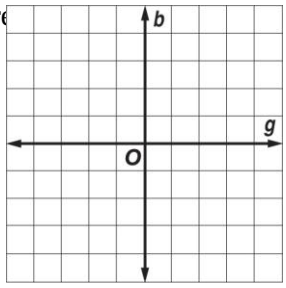
3. $y = x - 1$
$y - x = -1$



4. $y = 6x - 3$
$y = -3$



5. CLUBS There are thirty-three students in the Chess Club. There are five more boys than girls in the club. Write and solve a system of equations to find the number of boys and girls in the Chess Club.

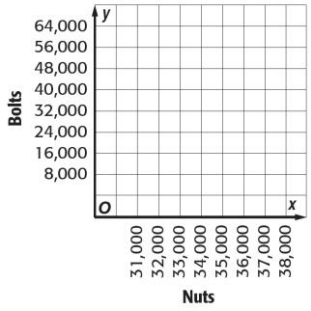


Lesson 3.7 Problem-Solving Practice

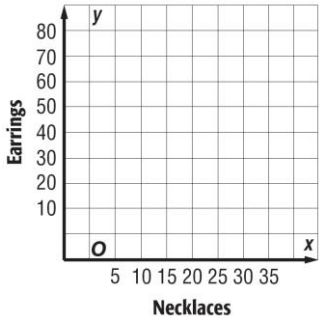
Solve Systems of Equations by Graphing

Write and solve a system of equations that represents each situation. Interpret the solution.

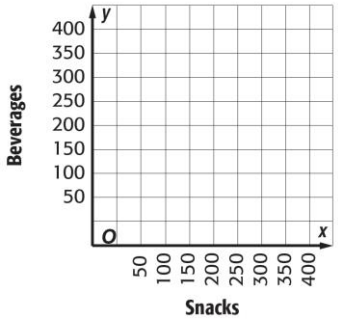
1. PROFIT Mr. Blackwell's company produces nuts and bolts. The total monthly profit for his company was $76,378. The profit earned from nuts was $3,428 more than the profit earned from bolts.



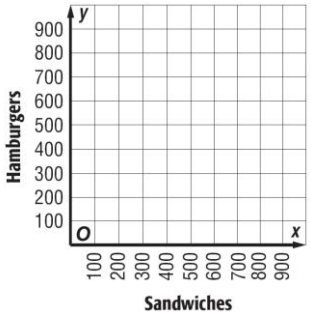
2. JEWELRY Julie has 81 pieces of jewelry. She has twice as many earrings as she has necklaces.



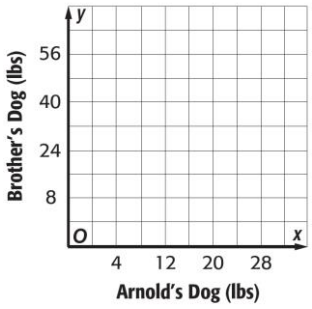
3. REFRESHMENTS The seventh grade class supplied bags of snacks and beverages for the school dance. They supplied19 more beverages than bags of snacks. The dance was supplied with a total of 371 items.



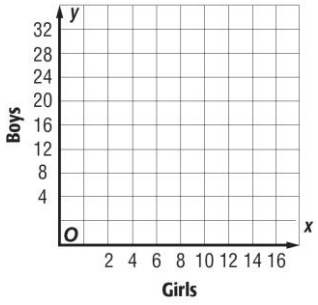
4. SANDWICHES The hamburger shop sells 500 sandwiches each day. They sell100 more hamburgers than they do chicken sandwiches.



5. DOGS Arnold's dog weighs 10 pounds less than twice his brother's dog. The dogs' combined weight is 50 pounds.



6. STUDENTS There are 26 students in Mrs. Ortlieb's class. There are two more boys than girls.



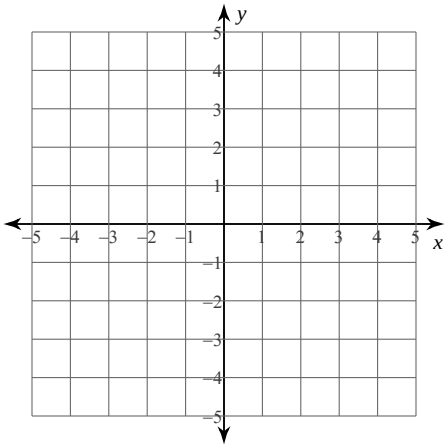
Solving Systems of Equations by Graphing

Date_____ Period____

Solve each system by graphing.

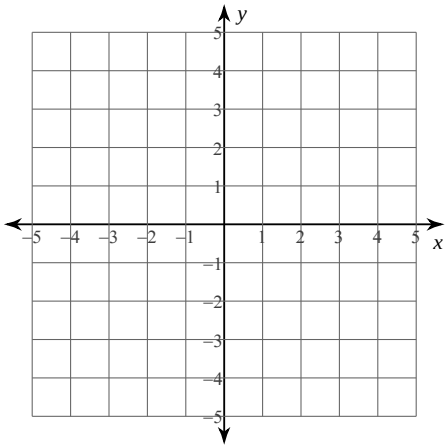
1) $y = \frac{1}{3}x - 4$

$y = -\frac{7}{3}x + 4$



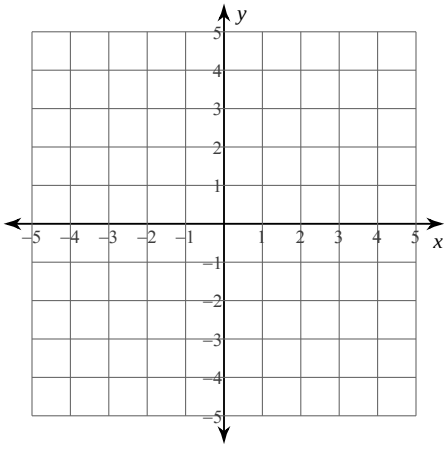
2) $y = \frac{1}{3}x + 3$

$y = 2x - 2$



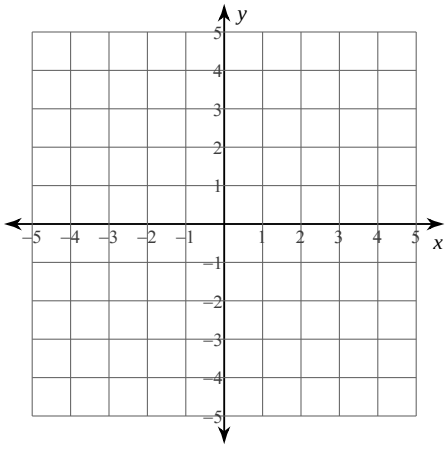
3) $y = -7x - 3$

$y = 4$



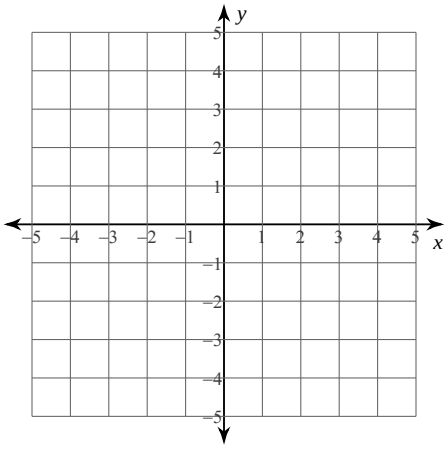
4) $y = -\frac{2}{3}x - 2$

$y = -\frac{8}{3}x + 4$



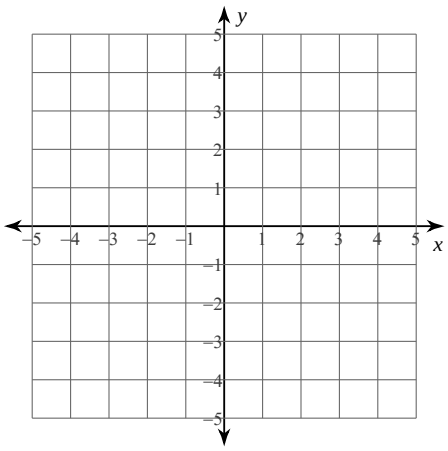
5) $y = -\frac{2}{3}x - 3$

$y = -\frac{2}{3}x + 4$



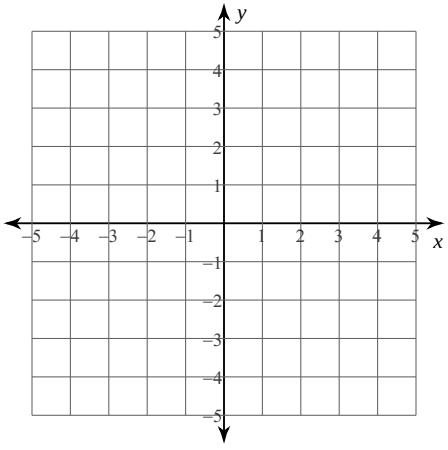
6) $y = -6x - 3$

$y = -x + 2$



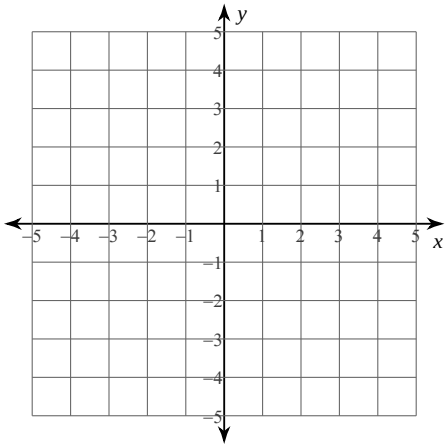
7) $y = -\frac{3}{4}x + 4$

$y = \frac{1}{2}x - 1$



8) $y = \frac{5}{2}x - 4$

$y = -x + 3$



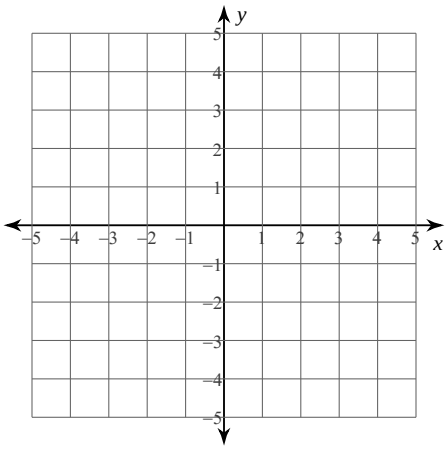
Solving Systems of Equations by Graphing

Date_____ Period____

Solve each system by graphing.

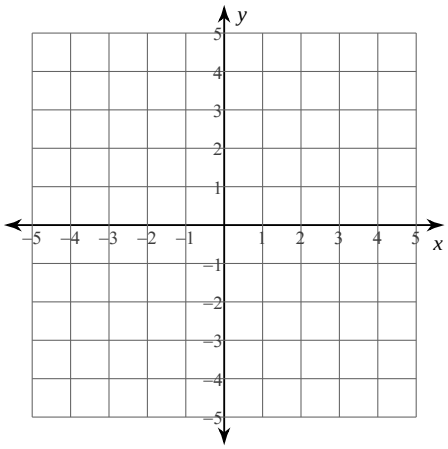
1) $y = -\frac{5}{3}x + 3$

$y = \frac{1}{3}x - 3$



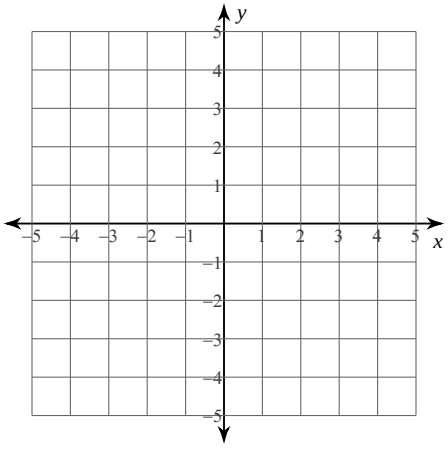
2) $y = 4x + 3$

$y = -x - 2$



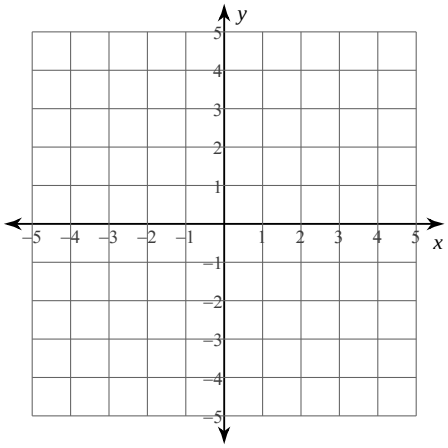
3) $y = -\frac{1}{2}x - 1$

$y = \frac{1}{4}x - 4$



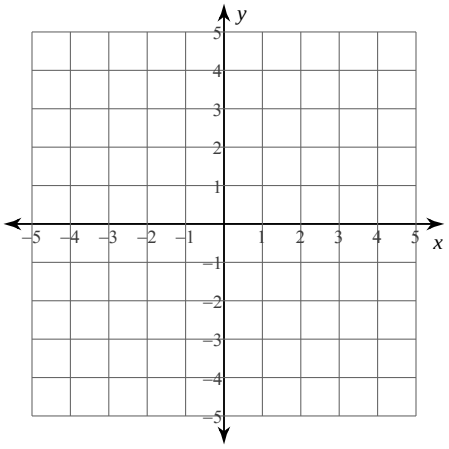
4) $y = -1$

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



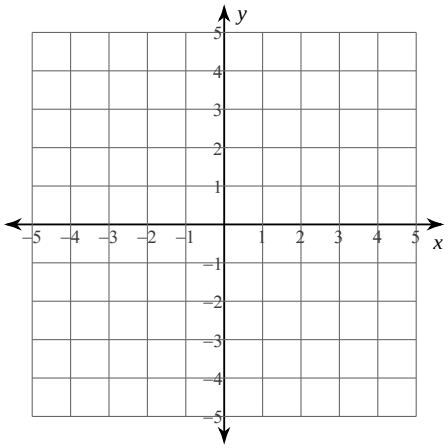
5) $y = 3x - 4$

$y = -\frac{1}{2}x + 3$



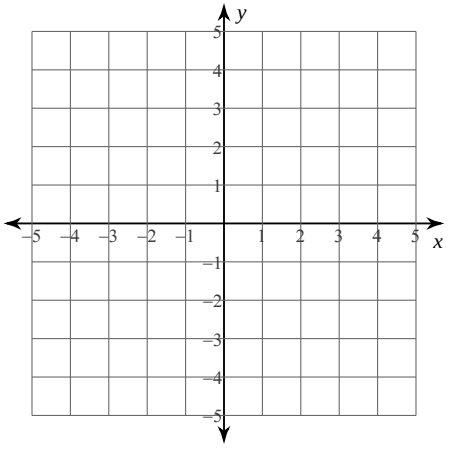
6) $y = -2x + 2$

$y = -2x - 2$



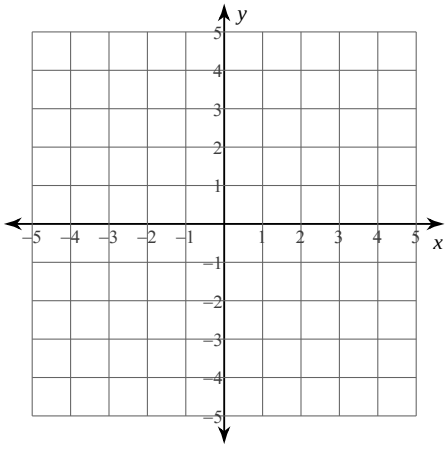
7) $y = -\frac{1}{2}x - 2$

$y = -\frac{3}{2}x + 2$



8) $y = \frac{1}{3}x - 3$

$y = -x + 1$



Lesson 3.8 Skills Practice

OBJECTIVE:
KEY NOTES:

Solve Systems of Equations Algebraically

Solve each system of equations algebraically.

1. $y = x - 8$
$y = 5x$

2. $y = -x - 4$
$y = 3x$

3. $y = x + 11$
$y = 12x$

4. $y = x - 14$
$y = -6x$

5. $y = -x + 9$
$y = 2x$

6. $y = x + 15$
$y = -4x$

7. $y = -x - 10$
$y = 4x$

8. $y = x + 24$
$y = -7x$

9. $y = -x + 18$
$y = 8x$

Write and solve a system of equations that represents each situation. Interpret the solution.

10. TELEVISION Videl watched 6 times as many hours of television over the weekend as Dineen. Together they watched a total of 14 hours of television. How many hours of television did each person watch over the weekend?

11. CROSS-COUNTRY SKIING Lucida is a cross-country ski racer. On Saturday, she skied twice as many miles as she did on Sunday. Over the weekend she skied a total of 63 miles. How far did she ski on each day?

12. DARTS Bryson and Lilly played a game of darts, and Lilly scored 4 more points than Bryson. The total of their scores was 180. How many points did each of them score?

Lesson 3.8 Problem-Solving Practice

Solve Systems of Equations Algebraically

1. GEOMETRY The perimeter of a rectangle is 36 meters. The length of the rectangle is 4 meters longer than the width. Find the length and width of the rectangle.	**2. WOOD** Mildred cut a 9 foot board into two pieces. The long piece is twice as long as the short one. How long is the short piece?
3. SWIMMING POOLS Victor's swimming pool holds 3,000 gallons. He filled the pool using two hoses. The larger hose filled the pool four times as fast as the smaller one. How many gallons of water came from the smaller hose?	**4. FALL** Julio bought a total of 20 medium and large pumpkins. If he spent \$53 and bought 6 more large pumpkins as medium pumpkins, how many large pumpkins did he buy? **Pumpkins** Large - \$3 Medium - \$2 Small - \$1
5. MUSIC Mr. Winkle downloaded 34 more songs than Mrs. Winkle downloaded. Together they downloaded 220 songs. How many songs did each download?	**6. BAND** The seventh and eighth grade bands held a joint concert. Together there were 188 band members. If the eighth grade band is 3 times as big as the seventh grade band, how big is the eighth grade band?
7. WORK Amal worked a total of 30 hours last week. On Saturday and Sunday he worked 5 times as many hours than he worked the rest of the week. How many hours did he work the rest of the week?	**8. RAIN** During the months of August and September the total rainfall was 6.2 inches. If the rainfall in August was 0.6 inch more than the amount of rainfall in September, how much rain fell in each month?

Solving Systems of Equations by Substitution

Date_____ Period____

Solve each system by substitution.

1) $y = 7x - 10$
$y = -3$

2) $y = -8$
$y = -2x - 12$

3) $y = 6x$
$y = 5x + 7$

4) $y = 9x - 9$
$y = 9$

5) $y = -4$
$y = x - 8$

6) $y = 8x - 9$
$y = 7$

7) $y = 6x - 14$
$y = -8x$

8) $y = 2x - 15$
$y = 5x$

9) $y = -8x$
$2x + 4y = 0$

10) $6x + 7y = 20$
$y = 2x$

11) $-3x - 5y = 6$
$y = -3$

12) $6x - 5y = 22$
$y = -8$

13) $y = 2x$
$3x + 3y = -18$

14) $y = 8x$
$-5x - 5y = 0$

15) $y = -3$
$-5x - 3y = 14$

16) $y = 3x$
$-3x - y = -24$

Solving Systems of Equations by Substitution

Date_____ Period____

Solve each system by substitution.

1) $y = 6x - 11$
$-2x - 3y = -7$

2) $2x - 3y = -1$
$y = x - 1$

3) $y = -3x + 5$
$5x - 4y = -3$

4) $-3x - 3y = 3$
$y = -5x - 17$

5) $y = -2$
$4x - 3y = 18$

6) $y = 5x - 7$
$-3x - 2y = -12$

7) $-4x + y = 6$
$-5x - y = 21$

8) $-7x - 2y = -13$
$x - 2y = 11$

9) $-5x + y = -2$
$-3x + 6y = -12$

10) $-5x + y = -3$
$3x - 8y = 24$

11) $x + 3y = 1$
$-3x - 3y = -15$

12) $-3x - 8y = 20$
$-5x + y = 19$

13) $-3x + 3y = 4$
$-x + y = 3$

14) $-3x + 3y = 3$
$-5x + y = 13$

15) $6x + 6y = -6$
$5x + y = -13$

16) $2x + y = 20$
$6x - 5y = 12$

17) $-3x - 4y = 2$
$3x + 3y = -3$

18) $-2x + 6y = 6$
$-7x + 8y = -5$

19) $-5x - 8y = 17$
$2x - 7y = -17$

20) $-2x - y = -9$
$5x - 2y = 18$

Solving Systems of Equations by Elimination

Date_____ Period____

Solve each system by elimination.

1) $-4x - 2y = -12$
$4x + 8y = -24$

2) $4x + 8y = 20$
$-4x + 2y = -30$

3) $x - y = 11$
$2x + y = 19$

4) $-6x + 5y = 1$
$6x + 4y = -10$

5) $-2x - 9y = -25$
$-4x - 9y = -23$

6) $8x + y = -16$
$-3x + y = -5$

7) $-6x + 6y = 6$
$-6x + 3y = -12$

8) $7x + 2y = 24$
$8x + 2y = 30$

9) $5x + y = 9$
$10x - 7y = -18$

10) $-4x + 9y = 9$
$x - 3y = -6$

11) $-3x + 7y = -16$
$-9x + 5y = 16$

12) $-7x + y = -19$
$-2x + 3y = -19$

13) $16x - 10y = 10$
$-8x - 6y = 6$

14) $8x + 14y = 4$
$-6x - 7y = -10$

15) $-4x - 15y = -17$
$-x + 5y = -13$

16) $-x - 7y = 14$
$-4x - 14y = 28$

17) $-7x - 8y = 9$
$-4x + 9y = -22$

18) $5x + 4y = -30$
$3x - 9y = -18$

19) $-4x - 2y = 14$
$-10x + 7y = -25$

20) $3x - 2y = 2$
$5x - 5y = 10$

21) $5x + 4y = -14$
$3x + 6y = 6$

22) $2x + 8y = 6$
$-5x - 20y = -15$

23) $-14 = -20y - 7x$
$10y + 4 = 2x$

24) $3 + 2x - y = 0$
$-3 - 7y = 10x$

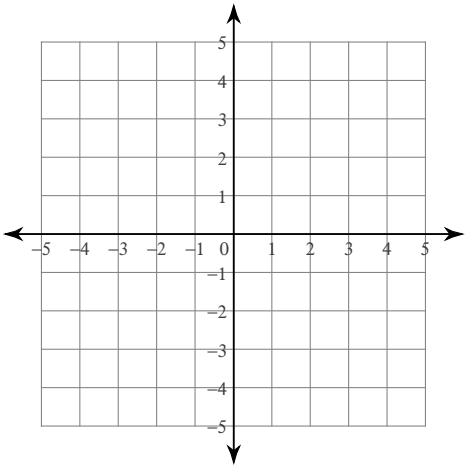
Name_____

Systems of Two Equations

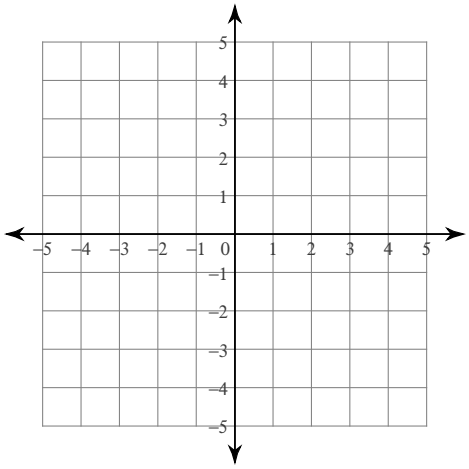
Date_____ Period____

Solve each system by graphing.

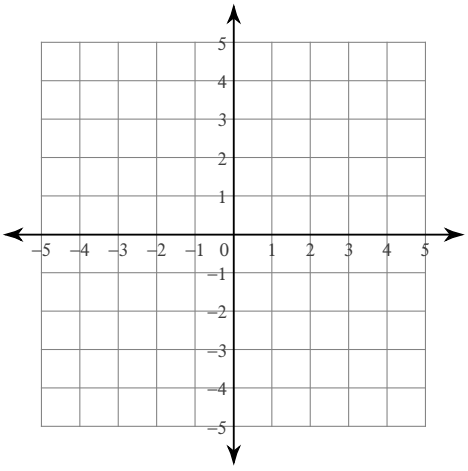
1) $y = -3x + 4$
$y = 3x - 2$



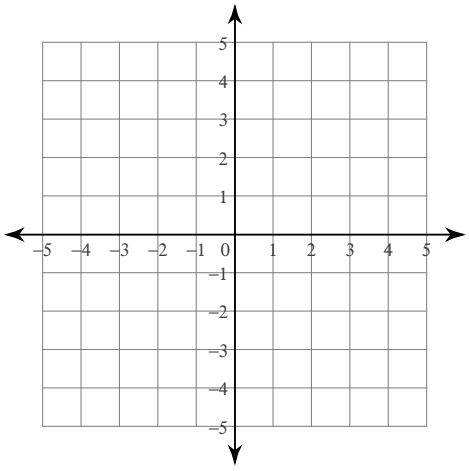
2) $y = x + 2$
$x = -3$



3) $x - y = 3$
$7x - y = -3$



4) $4x + y = 2$
$x - y = 3$



Solve each system by substitution.

5) $y = 4x - 9$
$y = x - 3$

6) $4x + 2y = 10$
$x - y = 13$

7) $y = -5$
$5x + 4y = -20$

8) $x + 7y = 0$
$2x - 8y = 22$

9) $6x + 8y = -22$
$y = -5$

10) $-7x + 2y = 18$
$6x + 6y = 0$

11) $7x + 2y = -19$
$-x + 2y = 21$

12) $3x - 5y = 17$
$y = -7$

13) $-7x + 4y = 24$
$4x - 4y = 0$

14) $4x - y = 20$
$-2x - 2y = 10$

Solve each system by elimination.

15) $8x - 6y = -20$
$-16x + 7y = 30$

16) $6x - 12y = 24$
$-x - 6y = 4$

17) $-8x - 10y = 24$
$6x + 5y = 2$

18) $-24 - 8x = 12y$
$1 + \frac{5}{9}y = -\frac{7}{18}x$

19) $-4y - 11x = 36$
$20 = -10x - 10y$

20) $-9 + 5y = -4x$
$-11x = -20 + 9y$

21) $0 = -2y + 10 - 6x$
$14 - 22y = 18x$

22) $-16y = 22 + 6x$
$-11y - 4x = 15$

23) $-16 + 20x - 8y = 0$
$36 = -18y - 22x$

24) $-\frac{5}{7} - \frac{11}{7}x = -y$
$2y = 7 + 5x$

Critical thinking questions:

25) Write a system of equations with the solution $(4, -3)$.

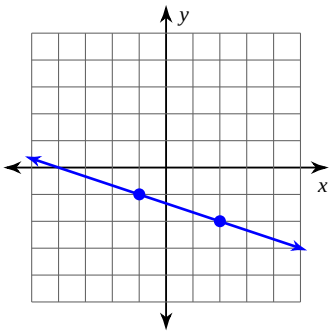
Name_____

Slope

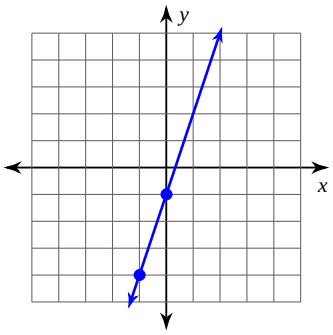
Date_____ Period____

Find the slope of each line.

1)



2)



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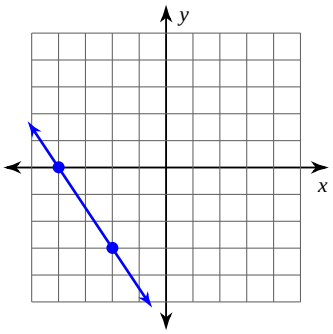
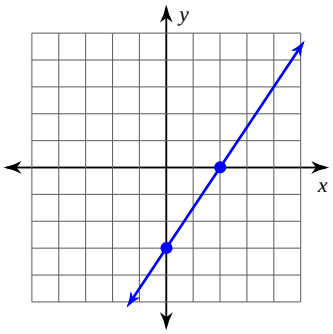
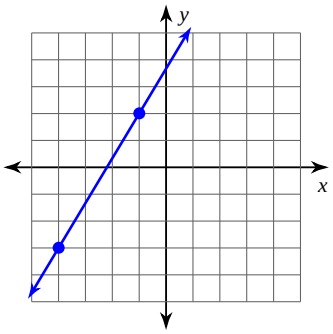


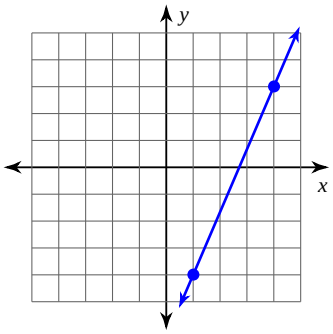
4)



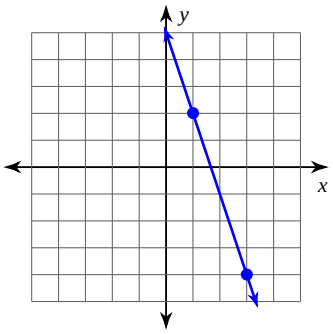
5)



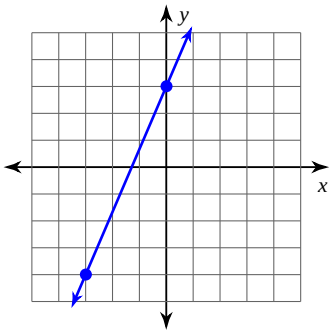
6)



7)



8)



Find the slope of the line through each pair of points.

9) $(8, 10), (-7, 14)$

10) $(-3, 1), (-17, 2)$

11) $(-20, -4), (-12, -10)$

12) $(-12, -5), (0, -8)$

13) $(-19, -6), (15, 16)$

14) $(-6, 9), (7, -9)$

15) $(-18, -20), (-18, -15)$

16) $(12, -18), (11, 12)$

Find the slope of each line.

17) $y = -5x - 1$

18) $y = \frac{1}{3}x - 4$

19) $y = -\frac{1}{5}x - 4$

20) $x = 1$

21) $y = \frac{1}{4}x + 1$

22) $y = -\frac{2}{3}x - 1$

23) $y = -x + 2$

24) $y = -x - 1$

25) $2x + 3y = 9$

26) $5x + 2y = 6$