PRE ALGEBRA – PA CORE – COURSE 2

STUDENT WORKBOOK

Unit 2 THE NUMBER SYSTEM

Before

After

2	The Number System	PURPLE	GREEN	RED
3.1	Integers and Absolute Value			
3.2	Add Integers			
3.3	Subtract Integers			
3.4	Multiply Integers			
3.5	Divide Integers			
4.1	Terminating and Repeating Decimals			
4.2	Compare and Order Rational Numbers			
4.3	Add and Subtract Like Fractions			
4.4	Add and Subtract Unlike Fractions			
4.5	Add and Subtract Mixed Numbers			
4.6	Multiply Fractions			
4.7	Convert Between Systems			
4.8	Divide Fractions			

STUDY ISLAND TOPICS

Properties of Addition and Subtraction
Properties of Multiplication and Division
Single Step Real World Problems

Name: _____ Period ____

NAME _____ DATE _____ PERIOD _____

Lesson 1 Extra Practice

Integers and Absolute Value

Write an integer for each situation.

1. seven degrees below zero

2. a loss of 3 pounds

3. a loss of 20 yards

4. a profit of $25

5. 112°F above 0

6. 2,830 feet above sea level

Graph each set of integers on a number line.

7. {-2, 0, 2}

8. {1, 3, 5}

9. {-2, -5, 3}

10. {7, -1, 4}

Evaluate each expression.

11. |1|

12. |–8|

13. |0|

14. |–82|

15. |64|

16. |–128|

17. |–22| + 5

18. |–40| – 8

19. |–18| + |10|

20. |–7| + |–1|

21. |98| – |–5|

22. |–49| – |–10|

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Lesson 1 Problem-Solving Practice

Integers and Absolute Value

1. DEATH VALLEY The lowest point in the United States is Death Valley in California. Its altitude is 282 feet below sea level. Write an integer to represent the altitude of Death Valley.	**2. RAIN** A meteorologist reported that in the month of April there were 3 inches more rainfall than normal. Write an integer to represent the amount of rainfall above normal in April.
3. ARCHIMEDES A famous mathematician and physicist named Archimedes was born in 287 B.C. Write an integer to express the year of his birth.	**4. TEMPERATURE** In our world's tropical rain forests, the average temperature of every month is 64 degrees above zero or higher. Write an integer to express this temperature.
5. STOCK MARKET A certain stock gained 5 points in one day and lost 4 points the next day. Which situation has the greater absolute value? Explain.	**6. ALTITUDE** An airplane pilot changed his altitude by 100 meters. Describe what this could mean.

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Lesson 2 Skills Practice

Add Integers

Add.

1. $5 + (-8)$

2. $-3 + 3$

3. $-3 + (-8)$

4. $-7 + (-7)$

5. $-8 + 10$

6. $-7 + 13$

7. $15 + (-10)$

8. $-11 + (-12)$

9. $25 + (-12)$

10. $-14 + (-13)$

11. $14 + (-27)$

12. $-28 + 16$

13. $5 + 11 + (-5)$

14. $7 + (-5) + 5$

15. $9 + (-9) + 10$

16. $-2 + 19 + 2$

17. **FOOTBALL** The Dolphins football team gained 16 yards on their first play then lost 11 yards on the next play. Write an addition expression to represent this situation. Find the sum and explain its meaning.

18. **SAVINGS ACCOUNT** Demetrius deposits $120 into his account. One week later, he withdraws $36. Write an addition expression to represent this situation. How much higher or lower is the amount in his account after these two transactions?

NAME _____ DATE _____ PERIOD _____

Lesson 2 Problem-Solving Practice

Add Integers

Write an addition expression to describe each situation. Then find each sum.

1. FOOTBALL A team gains 20 yards. Then they lose 7 yards.	**2. MONEY** Roger owes his mom $5. He borrows another $6 from her.
3. GOLF Jewel's score was 5 over par on the first 9 holes. Her score was 4 under par on the second 9 holes.	**4. HOT AIR BALLOON** A balloon rises 340 feet into the air. Then it descends 130 feet.
5. CYCLING A cyclist travels downhill for 125 feet. Then she travels up a hill 50 feet.	**6. AIRPLANE** A plane descends 1,200 feet. Then it descends another 500 feet.

Adding Positive and Negative Numbers

Date_____ Period____

Find each sum.

1) $(-7) + 9$

2) $(-8) + (-1)$

3) $(-1) + 5$

4) $(-6) + 12$

5) $(-8) + (-5)$

6) $11 + (-2)$

7) $49 + (-15)$

8) $(-47) + 30$

9) $49 + (-27)$

10) $(-29) + 9$

11) $43 + (-1)$

12) $10 + (-2) + 1$

13) $(-2) + 11 + 4$

14) $12 + 7 + (-4)$

15) $(-7) + 3 + 9$

16) $(-1) + 11 + 5$

17) $2 + 10 + (-10) + 10$

18) $10 + (-11) + 5 + (-5)$

19) $2 + 6 + (-7) + 10$

20) $(-5) + (-8) + (-2) + 1$

21) $(-6.8) + (-1.9)$

22) $2.489 + (-4.3)$

23) $(-4.7) + 5.7$

24) $(-5) + (-7.1)$

25) $(-3.9) + 7.1 + (-7.8)$

26) $(-4.5) + 4.9 + 3.4$

27) $(-2.1) + (-1) + (-7.6)$

28) $0.85 + (-2.4) + 4.5$

29) $\frac{5}{3} + \left(-\frac{7}{5}\right)$

30) $\frac{8}{5} + \left(-\frac{1}{3}\right)$

31) $\left(-\frac{1}{3}\right) + \left(-\frac{3}{5}\right)$

32) $\frac{1}{2} + \left(-\frac{5}{3}\right)$

33) $2 + \left(-\frac{1}{4}\right)$

34) $\left(-\frac{1}{4}\right) + \left(-\frac{3}{2}\right)$

NAME _____ DATE _____ PERIOD _____

Lesson 3 Skills Practice

Subtract Integers

Subtract.

1. $5 - 2$

2. $6 - (-7)$

3. $-3 - 2$

4. $8 - 13$

5. $-7 - (-7)$

6. $6 - 12$

7. $15 - (-7)$

8. $-15 - 6$

9. $-3 - 8$

10. $-10 - 12$

11. $13 - (-12)$

12. $14 - (-22)$

13. $10 - (-20)$

14. $-16 - 14$

15. $-25 - 25$

16. $6 - (-31)$

17. $-18 - (-40)$

18. $15 - (-61)$

Evaluate each expression if $r = -4$, $s = 10$, and $t = -7$.

19. $r - 7$

20. $t - s$

21. $s - (-8)$

22. $t - r$

23. $s - t$

24. $r - s$

NAME _____ DATE _____ PERIOD _____

Lesson 3 Problem-Solving Practice

Subtract Integers

1. FOOTBALL A team gained 5 yards on their first play of the game. Then they lost 6 yards. Find the total change in yardage.	**2. CHECKING** Your checking account is overdrawn by $50. You write a check for $20. What is the balance in your account?
3. TEMPERATURE The average temperature in Calgary, Canada, is 22°C in July and −11°C in January. Find the range of the highest and lowest temperatures in Calgary.	**4. ROLLER COASTER** A roller coaster begins at 90 feet above ground level. Then it descends 105 feet. Find the height of the coaster after the first descent.
5. SAVINGS Sonia has $235 in her savings account. She withdraws $45. What is left in her savings account?	**6. BEACH** Wai and Kuri were digging in the sand at the beach. Wai dug a hole that was 15 inches below the surface and Kuri dug a hole that was 9 inches below the surface. Find the difference in the depths of their holes.

 Name_____

Adding/Subtracting Integers

Date_____ Period____

Find each sum.

1) $(-12) + 7$

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

3) $(-6) + 12$

4) $8 + 7$

5) $3 + 4$

6) $(-45) + 9$

7) $(-1) + (-46)$

8) $(-30) + 10$

9) $(-34) + 50$

10) $38 + (-5)$

Find each difference.

11) $2 - (-2)$

12) $(-1) - 10$

13) $8 - 7$

14) $(-8) - (-6)$

15) $11 - 4$

16) $48 - (-31)$

17) $18 - 41$

18) $(-38) - 30$

19) $(-1) - (-3)$

20) $(-1) - (-40)$

Evaluate each expression.

21) $(-10) - 47$

22) $(-29) - 29$

23) $13 + (-29)$

24) $38 + 22$

25) $(-32) - 44$

26) $(-12) + (-11)$

27) $2 + 15 + 4$

28) $16 + (-13) + 5$

29) $2 - (-9) - 8$

30) $10 + 3 - (-8)$

 Name_____

Adding/Subtracting Decimals

Date_____ Period____

Find each sum.

1) $5.4 + (-9.7)$

2) $10.8 + (-4.73)$

3) $(-0.5) + 0.3$

4) $(-4.79) + (-0.4)$

5) $3.305 + 1.7$

6) $(-3.6) + 0.43$

7) $(-4.3) + 14.5$

8) $(-7.1) + 3.63$

9) $13.7 + 3.2$

10) $(-10.9) + 6.1$

Find each difference.

11) $2.2 - 7.3$

12) $(-8.1) - (-8.9)$

13) $2.9 - 9.4$

14) $(-3.9) - 8.9$

15) $9.8 - 7.1$

16) $(-18.278) - (-6.8)$

17) $17.9 - (-19.4)$

18) $15.5 - 15.5$

19) $1.58 - (-13.6)$

20) $1.81 - 17.17$

Evaluate each expression.

21) $19.4 + 24.2$

22) $(-14.8) - (-9.7)$

23) $(-9.1) + 3.5$

24) $0.96 - 8.5$

25) $9.5 - (-19.3)$

26) $3.4 - (-12.1)$

27) $8.7 + 3.8 + 12.3$

28) $(-13.6) + 12 - (-15.5)$

29) $3.4 - 5 - 10.4$

30) $(-5.6) - (-12.6) + (-6.6)$

NAME _____ DATE _____ PERIOD _____

Lesson 4 Skills Practice

Multiply Integers

Multiply.

1. $-4(6)$

2. $-2(-8)$

3. $12(-4)$

4. $-6(5)$

5. $-10(-9)$

6. $-(5)^2$

7. $(-5)^2$

8. $-30(5)$

9. $20(-6)$

10. $-14(-6)$

11. $(-13)^2$

12. $-7(15)$

13. $-3(4)$

14. $7(-3)$

15. $3(-3)$

16. $-2(-10)$

17. $(-5)(-3)(4)$

18. $-3(-3)(4)$

19. $-3(-5)$

20. $5(-3)$

21. $7(-5)(4)$

22. $-2(-5)(-3)$

23. $-10(-3)$

24. $-2(-3)^2$

NAME _____ DATE _____ PERIOD _____

Lesson 4 Problem-Solving Practice

Multiply Integers

Multiply.

1. TEMPERATURE Suppose the temperature outside is dropping 3 degrees each hour. How much will the temperature change in 8 hours?	**2. DIVING** A deep-sea diver descends below the surface of the water at a rate of 60 feet each minute. What is the depth of the diver after 10 minutes?
3. STOCK A computer stock lost 2 points each hour for 6 hours. Describe the total change in the stock after 6 hours.	**4. DROUGHT** A drought can cause the level of the local water supply to drop by a few inches each week. Suppose the level of the water supply drops 2 inches each week. How much will it change in 4 weeks?
5. MONEY Mrs. Rockwell lost money on an investment at a rate of $4 per day. Describe the change in her investment after two weeks.	**6. TENNIS BALLS** Josh purchased 8 cans of tennis balls. The cans came with 3 balls in each can. How many balls did Josh purchase?

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Lesson 5 Skills Practice

Divide Integers

Divide.

1. $-15 \div 3$

2. $-24 \div (-8)$

3. $22 \div (-2)$

4. $-49 \div (-7)$

5. $-8 \div (-8)$

6. $\frac{36}{-4}$

7. $225 \div (-15)$

8. $\frac{0}{-9}$

9. $-38 \div 2$

10. $\frac{64}{4}$

11. $-500 \div (-50)$

12. $-189 \div (-21)$

ALGEBRA Evaluate each expression if $m = -32$, $n = 2$, and $p = -8$.

13. $m \div n$

14. $p \div 4$

15. $p^2 \div m$

16. $m \div p$

17. $\frac{-p}{n}$

18. $p \div (-n^2)$

19. $\frac{p}{4n}$

20. $\frac{18 - n}{-4}$

21. $\frac{m + 8}{-4}$

22. $\frac{m + n}{6}$

NAME _____ DATE _____ PERIOD _____

Lesson 5 Problem-Solving Practice

Divide Integers

Divide.

1. STOCK MARKET During a 5-day workweek, the stock market decreased by 65 points. Find the average daily change in the market for the week.	**2. MOTION** Mr. Diaz decreased the speed of his car by 30 miles per hour over a period of 10 seconds. Find the average change in speed each second.
3. WEATHER Over the past seven days, Mrs. Cho found that the temperature outside had dropped a total of 35 degrees. Find the average change in temperature each day.	**4. BASKETBALL** The basketball team lost their last 6 games. They lost by a total of 48 points. Find their average number of points relative to their opponents.
5. POPULATION The enrollment at Davis Middle School dropped by 60 students over a 5-year period. What is the average yearly drop in enrollment?	**6. SUBMARINE** A submarine descends at a rate of 60 feet each minute. How long will it take it to descend to a depth of 660 feet below the surface?

 Name_____

Dividing Integers

Date_____ Period____

Find each quotient.

1) $35 \div -5$

2) $-8 \div 4$

3) $-24 \div 4$

4) $-8 \div -2$

5) $8 \div 4$

6) $-24 \div 8$

7) $-21 \div 7$

8) $6 \div -6$

9) $-132 \div -11$

10) $-60 \div -15$

11) $-52 \div -4$

12) $60 \div 12$

13) $6 \div -1$

14) $75 \div 15$

15) $65 \div -13$

16) $12 \div 4$

17) $-168 \div -12$

18) $-8 \div 2$

19) $\frac{-105}{7}$

20) $\frac{-4}{-1}$

21) $\frac{-10}{-2}$

22) $\frac{-144}{12}$

23) $\frac{24}{-12}$

24) $\frac{60}{-15}$

NAME _____ DATE _____ PERIOD _____

Lesson 1 Skills Practice

Terminating and Repeating Decimals

Write each repeating decimal using bar notation.

1. 0.7353535...

2. 0.424242...

3. 5.126126126...

Write each fraction or mixed number as a decimal. Use bar notation if the decimal is a repeating decimal.

4. $-\frac{3}{5}$

5. $\frac{19}{20}$

6. $3\frac{4}{5}$

7. $\frac{23}{50}$

8. $-1\frac{5}{8}$

9. $\frac{19}{25}$

10. $4\frac{17}{37}$

11. $-5\frac{3}{11}$

12. $\frac{17}{24}$

13. $6\frac{7}{32}$

14. $7\frac{9}{22}$

15. $-1\frac{17}{48}$

Write each decimal as a fraction in simplest form.

16. 0.8

17. 0.52

18. −0.92

19. −0.48

20. 0.86

21. 0.76

NAME _____ DATE _____ PERIOD _____

Lesson 1 Problem-Solving Practice

Terminating and Repeating Decimals

1. BOYS AND GIRLS There were 6 girls and 18 boys in Mrs. Johnson's math class. Write the number of girls as a fraction of the number of boys. Then write the fraction as a repeating decimal.	**2. CATS** In a neighborhood of 72 families, 18 families own one or more cats. Write the number of families who own one or more cats as a fraction. Then write the fraction as a decimal.
3. CELLULAR PHONES In Italy, about 74 of every 100 people use cellular telephones. Write the fraction of cellular phone users in Italy. Then write the fraction as a decimal.	**4. FRUITS** Ms. Rockwell surveyed her class and found that 12 out of the 30 students chose peaches as their favorite fruit. Write the number of students who chose peaches as a fraction in simplest form. Then write the fraction as a decimal.
5. TRAVEL Tora took a short trip of 320 miles. He stopped to have lunch after he had driven 120 miles. Write the fraction of the trip he had completed by lunch in simplest form. Then write the fraction as a decimal.	**6. VOTING** In a recent school election, 208 of the 325 freshmen voted in their class election. Write the fraction of freshmen who voted. Then write the fraction as a decimal.

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Lesson 2 Skills Practice

Compare and Order Rational Numbers

Replace each ○ with <, >, or = to make a true sentence.

1. $\frac{4}{7} \bigcirc \frac{3}{5}$

2. $\frac{5}{12} \bigcirc \frac{7}{24}$

3. $\frac{6}{28} \bigcirc \frac{3}{7}$

4. $\frac{7}{15} \bigcirc \frac{1}{4}$

5. $\frac{7}{11} \bigcirc \frac{3}{5}$

6. $\frac{5}{17} \bigcirc \frac{7}{8}$

7. $\frac{5}{12} \bigcirc \frac{7}{10}$

8. $\frac{15}{16} \bigcirc \frac{1}{4}$

9. $\frac{5}{8} \bigcirc \frac{3}{5}$

10. $\frac{3}{10} \bigcirc \frac{2}{9}$

11. $-\frac{3}{7} \bigcirc -\frac{5}{7}$

12. $\frac{9}{12} \bigcirc \frac{3}{4}$

13. $-\frac{4}{5} \bigcirc -\frac{2}{3}$

14. $\frac{4}{5} \bigcirc \frac{5}{4}$

15. $1\frac{1}{3} \bigcirc 1\frac{1}{2}$

16. $1\frac{1}{7} \bigcirc \frac{8}{7}$

17. $3\frac{4}{7} \bigcirc 3\frac{7}{8}$

18. $1\frac{2}{3} \bigcirc 1\frac{3}{4}$

Order each set of numbers from least to greatest.

19. 0.48, 0.46, $\frac{9}{20}$

20. 0.99, 0.89, $\frac{7}{8}$

21. $\frac{1}{4}$, 0.2, 0.4

NAME _____ DATE _____ PERIOD _____

Lesson 2 Problem-Solving Practice

Compare and Order Rational Numbers

1. RAIN The amount of rainfall was measured after a recent storm. The north side of town received $\frac{7}{8}$ inch of rain, and the south side received $\frac{13}{15}$ inch of rain. Which side of town received more rain from the storm?	**2. MOVIES** Because he sees movies at his local theater so often, Delmar is being offered a discount. He can have either $\frac{1}{3}$ off his next ticket or $\frac{3}{10}$ off his next ticket. Which discount should Delmar choose? Explain.
3. TRACK Willie runs the 110-meter hurdles in $17\frac{3}{5}$ seconds, and Anier runs it in $17\frac{6}{11}$ seconds. Which runner is faster?	**4. FARMING** Cassie successfully harvested $\frac{7}{12}$ of her crop, and Robert successfully harvested $\frac{29}{50}$ of his crop. Which person successfully harvested the larger portion of his or her crop?
5. TRANSPORTATION My-Lien has enough room in her truck to move 3.385 tons of gravel. Her father has asked her to move $3\frac{5}{16}$ tons. Will My-Lien be able to move all of the gravel in only one trip? Explain.	**6. WOOD WORKING** Kishi has a bolt that is $\frac{5}{8}$ inch wide, and she drilled a hole 0.6 inch wide. Is the hole large enough to fit the bolt? Explain.
7. PIZZA In a recent pizza-eating contest, Alfonso ate $1\frac{3}{8}$ pizzas, Della ate $1\frac{3}{10}$ pizzas, and Jack ate $1\frac{4}{9}$ pizzas. Which person won the contest?	**8. STUDYING** For a recent algebra exam, Pat studied $1\frac{8}{15}$ hours, Toni studied $1\frac{11}{20}$ hours, and Morgan studied $1\frac{9}{16}$ hours. List the students in order by who studied the most.

NAME _____ DATE _____ PERIOD _____

Lesson 3 Skills Practice

Add and Subtract Like Fractions

Add or subtract. Write in simplest form.

1. $\frac{3}{8}+\frac{3}{8}$

2. $\frac{7}{10}-\frac{5}{10}$

3. $\frac{9}{10}+\frac{3}{10}$

4. $\frac{4}{7}-\frac{2}{7}$

5. $\frac{2}{3}+\frac{2}{3}$

6. $\frac{5}{9}-\frac{2}{9}$

7. $\frac{8}{15}-\frac{1}{15}$

8. $\frac{5}{12}+\frac{5}{12}$

9. $\frac{7}{10}-\frac{3}{10}$

10. $\frac{7}{16}+\frac{5}{16}$

11. $\frac{19}{20}-\frac{3}{20}$

12. $-\frac{5}{9}+\frac{7}{9}$

13. $-\frac{4}{9}-\frac{1}{9}$

14. $\frac{2}{3}+\frac{1}{3}$

15. $-\frac{3}{4}-\frac{2}{4}$

16. $\frac{7}{8}-\frac{5}{8}$

17. $\frac{8}{9}-\frac{5}{9}$

18. $-\frac{5}{12}-\left(-\frac{3}{12}\right)$

19. $\frac{7}{9}+\frac{2}{9}$

20. $\frac{3}{5}+\frac{4}{5}$

21. $-\frac{11}{12}-\frac{5}{12}$

22. $\frac{5}{6}+\frac{4}{6}$

23. $\frac{3}{8}+\frac{5}{8}$

24. $-\frac{7}{16}-\left(-\frac{3}{16}\right)$

NAME _____ DATE _____ PERIOD _____

Lesson 3 Problem-Solving Practice

Add and Subtract Like Fractions

RETAIL STORES For Exercises 1–4, use the table at the right. It shows what fraction of the stores at a mall fall into seven categories.

Type of Store	Fraction of Stores in Mall
jewelry	$\frac{1}{30}$
clothing	$\frac{16}{30}$
gifts	$\frac{5}{30}$
electronics	$\frac{1}{30}$
department	$\frac{2}{30}$
shoes	$\frac{2}{30}$
athletic	$\frac{3}{30}$

1. What fraction of the stores are jewelry or gift stores?

2. What fraction of the stores are clothing or electronics stores?

3. Which type of store has the greatest number of stores?

4. How many more clothing stores are there than athletic stores? Write as a fraction.

5. SEWING Jin wants to make a scarf and matching hat for his sister. The patterns call for $\frac{7}{8}$ yard of fabric for the scarf and $\frac{4}{8}$ yard of fabric for the hat. How much fabric should Jin buy?

6. RESTAURANT Ms. Malle owns a restaurant. Typically, $\frac{3}{20}$ of the customers order fish, while $\frac{7}{20}$ of the customers order poultry. What fraction of her customers order either fish or poultry?

 Name_____

Multiplying Integers

Date_____ Period____

Find each product.

1) 6×-4

2) 4×2

3) 3×-4

4) -6×4

5) 5×-4

6) -3×4

7) -5×6

8) -2×-1

9) -8×-2

10) 11×12

11) -7×5

12) 9×-6

13) 10×5

14) 9×2

15) -12×7

16) 8×-12

17) $9 \times 10 \times 6$

18) $-6 \times -10 \times -8$

19) $7 \times 9 \times 7$

20) $6 \times 6 \times -2$

21) $-5 \times -4 \times -10$

22) $9 \times 9 \times -5$

23) $8 \times 3 \times 8$

24) $7 \times 5 \times -5$

NAME _____ DATE _____ PERIOD _____

Lesson 4 Skills Practice

Add and Subtract Unlike Fractions

Add or subtract. Write in simplest form.

1. $\frac{8}{15} - \frac{1}{5}$

2. $\frac{5}{6} + \frac{5}{12}$

3. $\frac{3}{5} - \frac{3}{10}$

4. $\frac{7}{16} + \frac{3}{8}$

5. $\frac{19}{20} - \frac{3}{10}$

6. $\frac{4}{9} - \frac{1}{12}$

7. $\frac{2}{3} + \frac{3}{7}$

8. $\frac{3}{4} + \frac{1}{7}$

9. $\frac{7}{8} - \frac{2}{3}$

10. $\frac{8}{9} - \frac{5}{6}$

11. $\frac{5}{12} - \frac{3}{10}$

12. $\frac{7}{9} + \frac{2}{3}$

13. $\frac{3}{5} + \frac{4}{7}$

14. $\frac{11}{12} - \frac{1}{2}$

15. $\frac{3}{4} - \left(-\frac{1}{2}\right)$

16. $-\frac{5}{6} + \frac{1}{4}$

17. $-\frac{2}{3} - \left(-\frac{3}{4}\right)$

18. $\frac{7}{8} + \frac{1}{12}$

19. $-\frac{3}{10} + \frac{5}{20}$

20. $\frac{7}{12} - \left(-\frac{1}{3}\right)$

NAME _____ DATE _____ PERIOD _____

Lesson 4 Problem-Solving Practice

Add and Subtract Unlike Fractions

MARBLES For Exercises 1–4, use the table showing colors of marbles.

Color	Fraction
Red	$\frac{3}{50}$
Blue	$\frac{3}{25}$
Green	$\frac{3}{10}$
Yellow	$\frac{1}{25}$
Pink	$\frac{1}{10}$
Purple	$\frac{1}{5}$
White	$\frac{9}{50}$

1. What fraction of the marbles are red or blue?

2. What fraction of the marbles are green or purple?

3. What fraction represents how many more purple marbles there are than yellow ones?

4. What fraction represents how many more white marbles there are than pink ones?

5. GRADES If $\frac{1}{3}$ of the students got an A and $\frac{2}{5}$ of them got a B, what fraction of the students got an A or a B?

6. WATER AEROBICS If $\frac{5}{8}$ of the people in a water aerobics class are over age 65 and $\frac{1}{4}$ of the people in the class are under age 40, what fraction of the people in the class are either over 65 or under 40?

NAME _____ DATE _____ PERIOD _____

Lesson 5 Skills Practice

Add and Subtract Mixed Numbers

Add or subtract. Write in simplest form.

1. $3\frac{2}{5} + 1\frac{1}{5}$

2. $6\frac{7}{10} + 12\frac{1}{10}$

3. $5\frac{3}{8} - 4\frac{1}{8}$

4. $3\frac{1}{2} - 2\frac{1}{2}$

5. $7\frac{1}{4} - 5\frac{3}{4}$

6. $8\frac{5}{6} + 9\frac{5}{6}$

7. $2\frac{1}{2} - 1\frac{1}{4}$

8. $3\frac{7}{8} + 5\frac{3}{4}$

9. $2\frac{5}{6} - \frac{7}{8}$

10. $8\frac{1}{5} + 3\frac{7}{10}$

11. $8\frac{4}{5} - 2\frac{9}{10}$

12. $3\frac{1}{4} - 2\frac{5}{6}$

13. $4\frac{3}{5} + 5\frac{1}{2}$

14. $10 - 7\frac{7}{8}$

NAME _____ DATE _____ PERIOD _____

Lesson 5 Problem-Solving Practice

Add and Subtract Mixed Numbers

Solve. Write your answer as a fraction in simplest form.

1. RUNNING On Monday, Deborah ran $3\frac{2}{5}$ miles and on Tuesday she ran $4\frac{1}{5}$ miles. How many miles did she run on these two days together?

2. PRINTING Swamee and Luigi were printing calendars. Swamee used $2\frac{1}{2}$ ink cartridges while Luigi used $1\frac{3}{4}$ ink cartridges. How many more ink cartridges did Swamee use than Luigi?

3. GARDENS The table shows the number of pounds of green beans that Irma and Jeremiah each picked from their garden. How many total pounds of green beans did they pick?

Name	Pounds
Irma	$5\frac{2}{3}$
Jeremiah	$4\frac{5}{6}$

4. MOVIES Mr. and Mrs. Simpson went to two movies. The first movie lasted $2\frac{1}{3}$ hours and the second one lasted $1\frac{4}{5}$ hours. How much longer was the first than the second movie?

5. CELL PHONE Mark talked on his cell phone 3 hours over the weekend. Genaro talked on his phone $1\frac{9}{10}$ hours. How much longer did Mark talk on his phone than Genaro?

6. VACATION Rodrick and Valentina drove to the coast. Rodrick drove $38\frac{9}{10}$ miles. Then Valentina drove the last $51\frac{3}{5}$ miles. How far did they drive to the coast?

Add/Subtracting Fractions and Mixed Numbers

Date_____ Period____

Evaluate each expression.

1) $\frac{5}{4} - \frac{3}{4}$

2) $\frac{3}{2} - \frac{1}{2}$

3) $\frac{2}{5} + \frac{4}{5}$

4) $\frac{1}{3} - \frac{1}{3}$

5) $6 - \frac{1}{6}$

6) $\frac{1}{2} - \frac{1}{2}$

7) $\frac{1}{5} + \frac{1}{5}$

8) $\frac{7}{6} - \frac{5}{6}$

9) $\left(-\frac{4}{5}\right) - \frac{7}{8}$

10) $\frac{1}{3} - \left(-\frac{5}{3}\right)$

11) $\left(-\frac{1}{3}\right) + \frac{3}{8}$

12) $\left(-\frac{10}{7}\right) + \frac{1}{6}$

13) $\frac{9}{5} + \left(-\frac{4}{3}\right)$

14) $2 - \frac{13}{8}$

15) $\frac{9}{5} - \frac{5}{8}$

16) $\left(-\frac{4}{3}\right) - \left(-\frac{3}{2}\right)$

17) $(-1) + \left(-2\frac{2}{5}\right)$

18) $\left(-3\frac{3}{5}\right) - 4\frac{2}{5}$

19) $3\frac{6}{7} + \left(-1\frac{1}{7}\right)$

20) $1\frac{2}{7} + \left(-3\frac{4}{7}\right)$

21) $2\frac{1}{3} + \left(-1\frac{2}{3}\right)$

22) $\left(-1\frac{3}{4}\right) + \left(-3\frac{3}{4}\right)$

23) $\left(-1\frac{7}{8}\right) + \left(-3\frac{1}{2}\right)$

24) $\left(-2\frac{7}{8}\right) + \left(-1\frac{1}{2}\right)$

25) $\left(-2\frac{5}{6}\right) - \left(-1\frac{1}{4}\right)$

26) $\left(-3\frac{5}{8}\right) - 4\frac{2}{5}$

27) $1\frac{2}{5} - \left(-3\frac{3}{4}\right)$

28) $2\frac{4}{5} - \frac{5}{8}$

Adding and Subtracting Positive and Negative Numbers

Date_____ Period____

Evaluate each expression.

1) $(-2) + 3$

2) $(-14) + (-7)$

3) $3 - (-8)$

4) $(-9) + 14$

5) $(-8) - (-2)$

6) $5 + (-8)$

7) $(-27) - 24$

8) $(-41) + (-40)$

9) $38 - (-17)$

10) $(-44) + (-9)$

11) $(-16) - (-36)$

12) $(-6) - 24$

13) $(-16) - 6 + (-5)$

14) $15 - 13 + 2$

15) $16 - (-13) - (-5)$

16) $(-7) - (-2) - 9$

17) $(-11) - (-14) + 7$

18) $7 + (-1) + 12 - 7$

19) $6 + (-7) + (-5) - (-2)$

20) $(-3) + 5 + (-5) + 12$

21) $(-11) - 8 + 1 - (-6)$

22) $10 - (-10) - 7 - 5$

23) $6 - 3.98$

24) $5.8 + (-2.5)$

25) $1.8 - (-3.7)$

26) $7 - 2.8$

27) $(-0.8) + (-7.2) - 5.4$

28) $1.7 - (-0.8) + 4.013$

29) $\left(-\frac{3}{2}\right) + \frac{8}{5}$

30) $\frac{7}{4} - \left(-\frac{1}{2}\right)$

31) $\left(-\frac{1}{5}\right) + \frac{7}{4}$

32) $\frac{2}{5} - \frac{4}{5}$

NAME _____ DATE _____ PERIOD _____

Lesson 6 Skills Practice

Multiply Fractions

Multiply. Write in simplest form.

1. $\frac{1}{2} \times \frac{4}{5}$

2. $\frac{1}{9} \times \frac{3}{5}$

3. $\frac{15}{24} \times \frac{3}{20}$

4. $-\frac{1}{7} \times \frac{1}{5}$

5. $\frac{5}{7} \times \frac{14}{15}$

6. $\frac{9}{10} \times \frac{5}{9}$

7. $\frac{4}{11} \times \frac{3}{8}$

8. $\frac{2}{3} \times \frac{7}{9}$

9. $-\frac{9}{13} \times \frac{26}{27}$

10. $-\frac{4}{9} \times (-5)$

11. $7 \times \frac{2}{7}$

12. $2\frac{4}{5} \times \frac{1}{3}$

13. $4\frac{1}{2} \times \frac{1}{3}$

14. $5\frac{3}{4} \times 12$

15. $14 \times 2\frac{3}{7}$

16. $2\frac{3}{5} \times 1\frac{3}{7}$

17. $1\frac{4}{9} \times 2\frac{4}{7}$

18. $-5\frac{5}{6} \times \left(-6\frac{3}{8}\right)$

19. $10\frac{7}{9} \times 4\frac{1}{4}$

20. $9\frac{7}{9} \times \left(-7\frac{3}{4}\right)$

21. $3\frac{3}{4} \times 2\frac{4}{7}$

NAME _____ DATE _____ PERIOD _____

Lesson 6 Problem-Solving Practice

Multiply Fractions

1. POPULATION If $\frac{4}{5}$ of the population of a certain town is considered to be middle class and the population of the town is 2,000, how many people are considered middle class?	**2. READING** Robin has read $\frac{3}{4}$ of a book. Mark said he had read $\frac{1}{2}$ as much as Robin. What fraction of the book has Mark read?
3. RADIO A radio station spends $\frac{1}{40}$ of each 24 hours on public service announcements. How much time is spent on public service announcements each day?	**4. SALE** A bicycle is on sale for $\frac{2}{3}$ of its original price. If the original price is \$354, what is the sale price?
5. STUDENT POPULATION One sixth of the students at a local college are seniors. The number of freshmen students is $2\frac{1}{2}$ times that amount. What fraction of the students are freshmen?	**6. SEWING** Anna wants to make 4 sets of curtains. Each set requires $5\frac{1}{8}$ yards of fabric. How much fabric does she need?
7. RUNNING It takes Awan $8\frac{1}{3}$ minutes to run one mile. It takes Kate $1\frac{1}{5}$ times longer. How long does it take Kate to run one mile?	**8. STOCK** Carl bought some stock at \$25 a share. The stock increased to $1\frac{1}{2}$ times its value. How much is the stock per share?

NAME _____ DATE _____ PERIOD _____

Lesson 7 Skills Practice

Convert Between Systems

Complete. Round to the nearest hundredth if necessary.

1. 4 c ≈ _____ mL

2. 2.7 lb ≈ _____ kg

3. 9 ft ≈ _____ m

4. 3 qt ≈ _____ mL

5. 7 in. ≈ _____ cm

6. 7 mi ≈ _____ km

7. 16 yd ≈ _____ m

8. 3 T ≈ _____ kg

9. 453.6 g ≈ _____ lb

10. 5.08 cm ≈ _____ in.

11. 41 kg ≈ _____ lb

12. 25 mi ≈ _____ km

13. 28 qt ≈ _____ L

14. 14 in. ≈ _____ cm

15. 32 cm ≈ _____ in.

16. 950 mL ≈ _____ c

17. 6.5 gal ≈ _____ L

18. 2.8 T ≈ _____ kg

19. 500 mL ≈ _____ pt

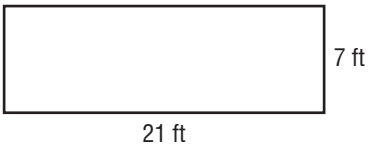
20. 65 in. ≈ _____ m

21. **RACE** Sterling just completed the 100-meter dash at his track meet. About how many yards did he run?

NAME _____ DATE _____ PERIOD _____

Lesson 7 Problem-Solving Practice

Convert Between Systems

1. RACE Leola ran in a 10-kilometer race. About how many miles did she run?	**2. SUPPER** Dallison cooked a 5-pound roast for supper. What is the estimated mass in grams?
3. SWIMMING POOL Nykia swam the length of her swimming pool twice. The dimensions of her pool are shown below. About how many meters did she swim? 	**4. LEMONADE** Beryl made 5 gallons of lemonade for a family gathering. About how many liters of lemonade did Beryl make?
5. MATH BOOK The length of Yuan's math book is 10.5 inches. What is the approximate length of her book in centimeters?	**6. YOGURT** Leatrice bought two one-quart containers of frozen yogurt. About how many liters of frozen yogurt did she buy?
7. AUTOMOBILES Mr. Shelton's car weighs about 1.75 tons. Find the approximate weight of his car in kilograms.	**8. ELEVATORS** The elevator in a new building travels a maximum distance of 32 meters. Find the estimated distance traveled in yards.

NAME _____ DATE _____ PERIOD _____

Lesson 8 Skills Practice

Divide Fractions

Divide. Write in simplest form.

1. $-\frac{1}{6} \div \frac{1}{5}$

2. $5 \div \frac{3}{5}$

3. $\frac{6}{7} \div \frac{1}{7}$

4. $\frac{3}{4} \div \frac{1}{2}$

5. $8 \div \frac{1}{3}$

6. $-\frac{1}{5} \div \left(-\frac{1}{4}\right)$

7. $7 \div \frac{3}{7}$

8. $\frac{4}{7} \div \frac{8}{9}$

9. $8\frac{1}{3} \div 5$

10. $\frac{9}{7} \div \frac{3}{14}$

11. $\frac{12}{5} \div \left(-\frac{3}{10}\right)$

12. $5 \div 3\frac{3}{4}$

13. $6\frac{4}{5} \div 17$

14. $7\frac{1}{3} \div 4$

15. $\frac{3}{4} \div 5\frac{1}{2}$

16. $\frac{2}{7} \div 1\frac{13}{14}$

17. $\frac{3}{8} \div 6\frac{1}{4}$

18. $7\frac{1}{2} \div \left(-2\frac{5}{6}\right)$

19. $-3\frac{4}{9} \div \left(-2\frac{1}{3}\right)$

20. $2\frac{2}{3} \div 1\frac{1}{6}$

21. $4\frac{3}{4} \div 2\frac{1}{2}$

NAME _____ DATE _____ PERIOD _____

Lesson 8 Problem-Solving Practice

Divide Fractions

1. PUPPETS If a puppet requires $\frac{3}{4}$ yard of material, how many puppets can be made from 9 yards of material?	**2. COOKING** A batch of cookies requires $1\frac{1}{2}$ cups of sugar. How many batches can Ty make with $7\frac{1}{2}$ cups of sugar?
3. FOOD Julia has $3\frac{1}{2}$ pounds of dog food. She plans to split it equally among her 7 dogs. How much dog food will each dog receive?	**4. SNOW CONES** Randy has two 28-pound blocks of ice for his snow cone stand. If each snow cone requires $\frac{2}{3}$ pound of ice, how many snow cones can Randy make?
5. APPLES Juan took 6 apples and cut each into eighths. How many pieces of apple did he have?	**6. VACATION** The Torres family drove 1,375 miles during their $6\frac{1}{4}$-day vacation. Find the average number of miles they traveled each day.
7. RUNNING Hugo just joined the cross-country team and can run at a rate of $\frac{1}{7}$ mile each minute. How long will it take him to run a 5-mile race?	**8. LUMBER** Mrs. Shin has a piece of lumber that is $11\frac{5}{8}$ inches wide. She plans to split the width of lumber into 3 equal pieces. How wide will each piece be?

Multiplying and Dividing Positives and Negatives

Date_____ Period____

Find each quotient.

1) $\frac{10}{5}$

2) $\frac{-24}{12}$

3) $\frac{-20}{-2}$

4) $\frac{-300}{-20}$

5) $\frac{65}{5}$

6) $\frac{-66}{-6}$

7) $\frac{75}{-15}$

8) $\frac{-56}{-14}$

9) $\frac{102}{-17}$

10) $\frac{-72}{-4}$

11) $153 \div 17$

12) $12 \div -3$

13) $48 \div 6$

14) $-120 \div -20$

15) $306 \div 18$

16) $-65 \div 13$

17) $-85 \div -17$

18) $128 \div -16$

19) $-180 \div 15$

20) $234 \div -13$

Find each product.

21) -11×9

22) -7×-12

23) -8×-11

24) -6×4

25) -3×-11

26) -5×-9

27) 9×-7

28) -9×-3

29) 12×-12

30) 11×-6

31) $6 \times -5 \times 3$

32) $6 \times -1 \times 2$

33) $8 \times -6 \times -3$

34) $-3 \times 6 \times -6$

35) $(3)(3)(-1)(3)$

36) $(-3)(3)(-3)(-3)$