LESSON 1

Fractions, Decimals, and Percents

Review It!

Remember these fraction-decimal equivalences. They can help you convert other fractions to decimals and percents.

$\frac{1}{25} = 0.04$ $\quad$ $\frac{1}{10} = 0.1$ $\quad$ $\frac{1}{4} = 0.25$

$\frac{1}{20} = 0.05$ $\quad$ $\frac{1}{5} = 0.2$ $\quad$ $\frac{1}{2} = 0.5$

Change the fraction $\frac{1}{8}$ to a decimal and to a percent.

Step 1 Change $\frac{1}{8}$ to a decimal.

REMEMBER Divide the numerator by the denominator.

_____

Step 2 Write 0.125 as a percent.

Move the decimal point 2 places to the right AND attach a % sign.

The decimal point is now between _____ and _____.

So, $\frac{1}{8}$ is equivalent to the decimal _____ and to _____%.

Try It!

Write each as a fraction in simplest form.

1. 0.375 _____ **2.** 0.7 _____

3. 40% _____ **4.** 75% _____

Write each as a decimal.

5. 28% _____ **6.** 35.5% _____

7. $\frac{3}{5}$ _____ **8.** $\frac{11}{20}$ _____

Write each as a percent.

9. $\frac{1}{2}$ _____ **10.** 0.775 _____

11. 0.008 _____ **12.** $\frac{7}{8}$ _____

Solve.

13. About 60% of the human body is made up of water. What is this number as a fraction and as a decimal?

_____ and _____

14. An amusement park ride cost $1\frac{1}{5}$ times what the same ride cost the previous year. What is this number as a decimal and as a percent?

_____ and _____

Ask Yourself

1. $0.375 = \frac{375}{?}$
10, 100, or 1,000?

5. Move the decimal point where?
2 places to the left, or
2 places to the right?

9. Which is the correct division?
$1 \div 2$, or $2 \div 1$?

13. What is the greatest number that divides evenly into 60 and 100?
6, 10, or 20?

On Your Own!

Circle the answer for each question.

1. $\frac{3}{10} =$ _____

A. 0.003
B. 0.03
C. 0.3
D. 30

2. $\frac{21}{50} =$ _____

A. 0.042
B. 0.21
C. 0.42
D. 21.5

3. $\frac{7}{200} =$ _____

A. 0.035
B. 0.35
C. 0.72
D. 7.2

4. Lucy spends $\frac{19}{25}$ of her allowance on clothes. What percent of her allowance does she spend on clothes?

A. 19%
B. 19.25%
C. 38%
D. 76%

5. Which group shows equivalent fractions, decimals, and percents?

A. $\frac{7}{10}, 0.7, 7\%$
B. $\frac{1}{8}, 0.18, 18\%$
C. $\frac{2}{5}, 0.4, 40\%$
D. $\frac{3}{8}, 0.375, 375\%$

6. Which group shows equivalent fractions, decimals, and percents?

A. $\frac{9}{12}, 0.75, 75\%$
B. $\frac{5}{8}, 1.6, 16\%$
C. $\frac{2}{8}, 2.8, 28\%$
D. $\frac{3}{12}, 0.25, 2.5\%$

7. A county sales tax is 5.5%. What is the decimal for this sales tax?

A. 0.0055
B. 0.055
C. 0.55
D. 5.5

8. About $\frac{11}{50}$ of Earth's fresh water is groundwater. What percent of Earth's fresh water is groundwater?

A. 11%
B. 22%
C. 39%
D. 50%

9. When a shoe store had a sale, $\frac{80}{250}$ of all its customers purchased sneakers.

Part A What percent of the customers purchased sneakers?

Show your work.

Part B Use what you know about changing between fractions, decimals, and percents to explain why your answer is correct. Use words and/or numbers.

Math Words

Fill in the blanks.

10. A number with a numerator and a denominator is a(n) _____.

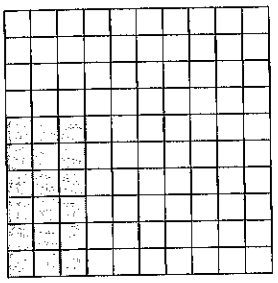
11. A ratio of a number to 100 is a(n) _____.

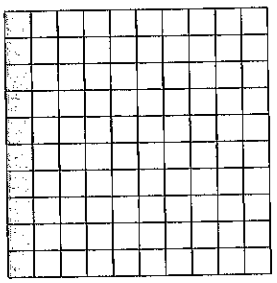
12. You can write a number as a(n) _____, _____, or _____ without changing the value of the number.

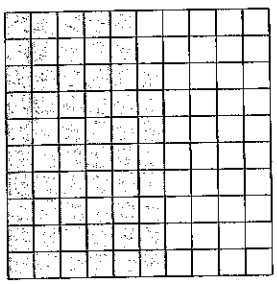
Name_____ Date_____

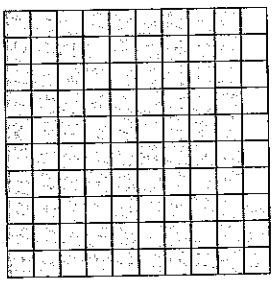
Chapter 4 Fair Game Review

What percent of the model is shaded?

1. 

2. 

3. 

4. 

Write the fraction as a decimal or the decimal as a fraction.

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

6. $\frac{21}{40}$

7. 0.26

8. 0.79

9. In your class, 0.65 of the students are wearing sneakers. What fraction of students are wearing sneakers?

Name _____ Date _____

Chapter 4

Fair Game Review (continued)

Write the fraction as a percent or the percent as a fraction.

10. $\frac{13}{20}$

11. $\frac{47}{50}$

12. 52%

13. 31%

Write the decimal as a percent or the percent as a decimal.

14. 0.06

15. 0.84

16. 22%

17. 191%

Complete the table.

	Percent	Decimal	Fraction
18.	45%		
19.		0.73	
20.			$\frac{3}{10}$

LESSON 5

Solving Problems Using Percents

Review It!

When you use percents, remember these words:

percent a part of 100

15% is 15 out of 100.

regular price original price

discount amount off the regular price

rate of discount percent off the regular price

sale price price paid after subtracting the discount

A pair of shoes that regularly costs $85 is on sale for 20% off. What is the sale price?

Step 1 Change the percent to a decimal.

20% = _____

REMEMBER move the decimal point to the left

Step 2 Multiply to find the discount.

0.20 × 85 = _____

Step 3 Subtract the discount.

85 − 17 = _____

THINK regular price − discount = sale price

So, the sale price is _____.

Try It! Write each percent as a decimal.

1. 25% = _____ **2.** 35% = _____ **3.** 50% = _____ **4.** 75% = _____

1. How should you move the decimal point? two places left, or two places right?

Find the sale price.

5. regular price: $90, rate of discount: 10%

_____

6. regular price: $45, rate of discount: 20%

_____

5. What do you do with the regular price and the rate of discount? add, or multiply?

7. regular price: $64, rate of discount: 5%

_____

8. regular price: $120, rate of discount: 30%

_____

Solve.

9. Victor is buying a new car that regularly costs $24,800. The discount is 5% off the regular price. How much is the discount?

_____

9. What is 10% off the regular price? 248, or 2,480?

10. Lonnie buys a computer on sale for 25% off the regular price of $875. What is the sale price of the computer?

_____

On Your Own!

Circle the answer for each question.

1. A book about Gettysburg has a regular price of $24. It goes on sale at a 10% discount. What is the discount?

   A. $2.40 **C.** $0.04
   B. $0.24 **D.** $0.02

2. A camera has a regular price of $170. It goes on sale at a 20% discount. What is the discount?

   A. $136.00 **C.** $17.00
   B. $34.00 **D.** $0.34

3. Shoes that regularly cost $92 go on sale at 40% off the regular price. What is the discount?

   A. $56.20 **C.** $38.80
   B. $55.20 **D.** $36.80

4. A soccer ball that regularly costs $65 goes on sale at a 35% off the regular price. What is the discount?

   A. $23.75 **C.** $22.75
   B. $22.85 **D.** $21.75

5. A plant that regularly sells for $52 goes on sale for 20% off the regular price. What is the sale price?

   A. $42.60 **C.** $10.40
   B. $41.60 **D.** $10.30

6. Mr. Weston buys a car that regularly sells for $26,900. The car is on sale for 15% off the regular price. What is the sale price of the car?

   A. $26,980 **C.** $22,865
   B. $22,965 **D.** $22,765

7. Mrs. Young buys a dishwasher with a regular price of $349 on sale for 25% off. What is the sale price?

   A. $261.75 **C.** $265.55
   B. $262.75 **D.** $348.75

8. A computer with a regular price of $985 goes on sale for 35% off. What is the sale price?

   A. $738.75 **C.** $642.25
   B. $640.25 **D.** $344.75

9. Two stores are having sales. The regular price of a unicycle at Store A is $62.00. The sale price is 25% off the original price. For the same unicycle, Store B is offering a 20% discount off the regular price of $82.80.

Part A Which store is offering the greater discount?

Show your work.

Part B Which store is selling the unicycle for the lower sale price?

Show your work.

Math Words

Fill in the blanks.

10. The _____ price is what you pay after you subtract the _____.

11. The regular price is always greater than the _____.

LESSON 9

Estimating With Percents

Review It! When you estimate with percents, remember this word:

estimate a calculation that is close to an exact answer

Rachel earned $194 last week. She saved 11% of it in her bank account. About how much money did she save last week?

Step 1 Round each number.

Round $194 up to _____. Round 11 down to _____.

REMEMBER If the tens digit is 5, 6, 7, 8, or 9, round up.

Step 2 Write the percent as a decimal.

10% = _____

Step 3 Multiply.

200 × 0.1 = _____

THINK It is easy to multiply by 0.1.

So, Rachel saved about _____ last week.

Try It! Round each number to the place with the greatest value.

1. 49 _____

2. 610 _____

3. 149 _____

4. 75 _____

5. 1,092 _____

6. 2,961 _____

7. 945 _____

8. 6,123 _____

1. Which place has the greatest value? ones, tens, or hundreds?

Round each percent to the place with the greatest value.

9. 68% _____

10. 23% _____

11. 59% _____

12. 91% _____

13. 17% _____

14. 71% _____

15. 86% _____

16. 3% _____

9. Where is the place with the greatest value? farthest left, or farthest right?

Solve.

17. Michael spent 28% of his $205 earnings last week. About how much of his earnings did he spend?

_____

17. Which is an easy percent to use? 25%, or 30%?

18. On Monday, about 22% of 102 eighth-grade students wore sweaters to school. About how many eighth-grade students wore sweaters to school on Monday?

_____

On Your Own!

Circle the answer for each question.

1. The math club started the school year with 112 members. By June, 15% of the members had left the club. Which is the best estimate of the number of members who left the club?

A. 30
B. 25
C. 20
D. 15

2. A family went out for dinner at a restaurant. The bill was $148.95. They want to leave a 15% tip. Which is the best estimate of the tip that they should leave?

A. $15
B. $22
C. $30
D. $35

3. A car dealer has 395 cars on the lot. Of these cars, about 15% are red. Which is the best estimate of the number of red cars on the lot?

A. 40
B. 60
C. 70
D. 80

4. An ATV that regularly sells for $1,795 is on sale at a discount of 30%. Which is the best estimate of the discount on the ATV?

A. $600
B. $800
C. $900
D. $1,000

5. A town with 198,296 people claims that 25% of the people have lived there more than 20 years. Which is the best estimate of the number of people who have lived in the town more than 20 years?

A. 20,000
B. 30,000
C. 40,000
D. 50,000

6. A dog weighed 38 pounds when it was two years old. The dog increased its weight by 29% the next year. Which is the best estimate of the weight the dog gained that year?

A. 29 lb
B. 22 lb
C. 12 lb
D. 9 lb