

Solve using any strategy.

1. Five workers take 12 hours to do a job. The number of person-hours the job requires is the number of hours the job would take one person to do. How many person-hours does the job require?

In how many hours could 20 workers do the job?

2. If it takes 6 people 4 days to dig a ditch that's 10 feet long, how long will it take 3 people to dig a ditch that's 5 feet long?



Practice 6-3 Similar Figures and Scale Drawings

The scale of a map is $\frac{1}{2}$ in. : 8 mi. Find the actual distance for each map distance.

1. 2 in.

2. 5 in.

3. $3\frac{1}{2}$ in.

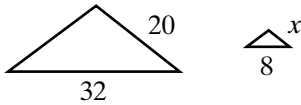
4. 10 in.

5. 8 in.

6. $7\frac{1}{4}$ in.

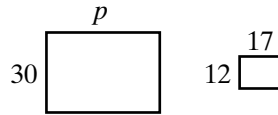
Each pair of figures is similar. Find the missing length. Round to the nearest tenth where necessary.

7.



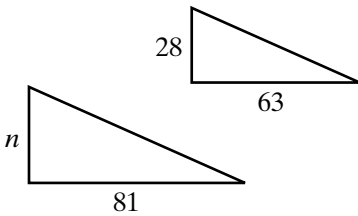
$x =$ _____

8.



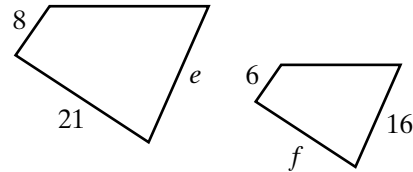
$p =$ _____

9.



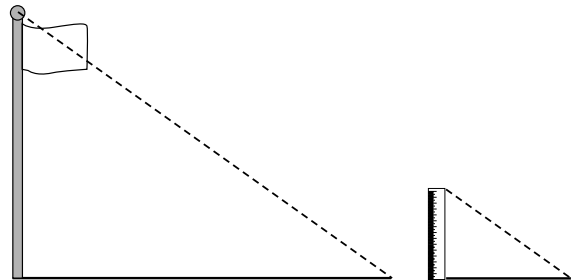
$n =$ _____

10.



$e \approx$ _____ $f =$ _____

11. A meter stick casts a shadow 1.4 m long at the same time a flagpole casts a shadow 7.7 m long. The triangle formed by the meterstick and its shadow is similar to the triangle formed by the flagpole and its shadow. How tall is the flagpole?



A scale drawing has a scale of $\frac{1}{4}$ in. : 6 ft. Find the length on the drawing for each actual length.

12. 18 ft

13. 66 ft

14. 204 ft

Reteaching 6-5 Fractions, Decimals, and Percents

Write $\frac{7}{8}$ as a percent and 64% as a fraction in lowest terms.

Divide $7 \div 8$.

$$\begin{array}{r} 0.875 \\ 8 \overline{)7.000} \\ \underline{64} \\ 60 \\ \underline{56} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

$$\frac{7}{8} = 0.875$$

$$0.875 = 87.5\%$$

$$\text{Thus } \frac{7}{8} = 87.5\%.$$

64% means 64 parts per 100.

$$64\% = \frac{64}{100}$$

$$= \frac{2^4}{2^2 \cdot 5^2}$$

$$= \frac{16}{25}$$

$$\text{Thus } 64\% = \frac{16}{25}.$$

Write each fraction as a percent.

1. $\frac{7}{10}$ _____

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

3. $\frac{11}{20}$ _____

4. $\frac{17}{25}$ _____

5. $\frac{1}{5}$ _____

6. $\frac{39}{100}$ _____

7. $\frac{1}{20}$ _____

8. $\frac{13}{50}$ _____

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

10. $\frac{3}{16}$ _____

Write each percent as a fraction in simplest terms.

11. 15% _____

12. 12.5% _____

13. 76% _____

14. 14% _____

15. 60% _____

16. 97% _____

17. 25% _____

18. 30% _____

19. 82% _____

20. 68.75% _____

Reteaching 6-6 Proportions and Percents

What percent of 98 is 24.5?

You can solve percent problems by writing and solving a proportion.

Any percent problem of the form $x\%$ of a is b can be written as:

$$\frac{x}{100} = \frac{b}{a}$$

$$\text{so } \frac{x}{100} = \frac{24.5}{98}$$

Write a proportion.

$$98x = 2,450$$

Write cross products.

$$\frac{98x}{98} = \frac{2,450}{98}$$

Divide each side by 98.

$$x = 25$$

Simplify.

24.5 is 25% of 98.

Write a proportion. Then solve. Where necessary, round to the nearest tenth or tenth of a percent.

- | | |
|---|--|
| 1. What percent of 75 is 60?
_____ | 2. What percent of 68 is 51?
_____ |
| 3. What percent is 17 of 25?
_____ | 4. What percent of 51 is 65?
_____ |
| 5. What percent of 144 is 126?
_____ | 6. What percent of 95 is 25?
_____ |
| 7. Find 24% of 120.
_____ | 8. Find 75% of 76.
_____ |
| 9. Find 260% of 30.
_____ | 10. Find $27\frac{1}{2}\%$ of 96.
_____ |
| 11. Find 38% of 32.
_____ | 12. Find 17% of 85.
_____ |
| 13. 40% of x is 28. What is x ?
_____ | 14. 9% of k is 27. What is k ?
_____ |
| 15. 75% of p is 12. What is p ?
_____ | 16. 0.9% of h is 276. What is h ?
_____ |
| 17. 13% of r is 209. What is r ?
_____ | 18. 68% of j is 44. What is j ?
_____ |

Reteaching 6-7 Percents and Equations

8 is 16% of what?

You can solve percent problems by writing and solving an equation.

8 is 16% of what?

$8 = 0.16 \cdot n$ Write an equation. Write the percent as a decimal.

$\frac{8}{0.16} = \frac{0.16n}{0.16}$ Divide each side by 0.16.

$50 = n$ Simplify

8 is 16% of 50.

Write and solve an equation. Where necessary, round to the nearest tenth or tenth of a percent.

1. What percent is 84 of 60?

3. What percent is 22 of 33?

5. What percent is 18 of 48?

7. Find 37.5% of 104.

9. Find 68% of 150.

11. Find 12.5% of 56.

13. 95% of h is 60. What is h ?

15. 30% of n is 42. What is n ?

17. 25% of y is 96. What is y ?

2. What percent of 40 is 26?

4. What percent of 32 is 28?

6. What percent of 81 is 18?

8. Find 0.4% of 25.

10. Find 180% of 65.

12. Find 86% of 55.

14. 24% of m is 17. What is m ?

16. 28% of b is 49. What is b ?

18. 72% of k is 234. What is k ?

Reteaching 6-8 Percent of Change

Find the percent of decrease from 85 to 60.

Find the amount of decrease.

$$85 - 60 = 25$$

$$\begin{aligned}\text{percent of decrease} &= \frac{\text{amount of decrease}}{\text{original amount}} \\ &= \frac{25}{85} \\ &\approx 0.294 = 29.4\%\end{aligned}$$

The percent of decrease is about 29.4%

Find each percent of increase. Where necessary, round to the nearest tenth of a percent.

1. 40 is increased to 45.

2. 33 is increased to 55.

3. 15 is increased to 34.

4. 11 is increased to 88.

5. 72 is increased to 117.

6. 28 is increased to 49.

7. 35 is increased to 49.

8. 48 is increased to 132.

Find each percent of decrease. Where necessary, round to the nearest tenth of a percent.

9. 60 is decreased to 15.

10. 56 is decreased to 35.

11. 140 is decreased to 77.

12. 96 is decreased to 64.

13. 99 is decreased to 69.

14. 50 is decreased to 44.

15. 83 is decreased to 0.

16. 475 is decreased to 152.

PERCENT INCREASE AND DECREASE

Name _____

Connect the percent increase or decrease in the guitar to its correct answer in the note by drawing a line.

What is the percent increase from 40 to 64? **68.75%**

What is the percent decrease from 50 to 3? **25.2**

What is the percent increase from 25 to 95? **94%**

What is the percent decrease from 64 to 20? **56.25%**

What is the percent increase from 60 to 102? **70%**

What is 181 increased by 23%? **2.28**

What is 199 decreased by 9%? **74.1**

What is 15 increased by 68%? **181.09**

What is 78 decreased by 5%? **222.63**

What is 87 increased by 45%? **126.15**

What is 6 decreased by 62%? **60%**

What is 181 increased by 23%? **280%**

What is 199 decreased by 9%? **74.1**

What is the percent increase from 60 to 102? **70%**

What is the percent decrease from 80 to 35? **56.25%**

PRACTICE Percent Increase and Decrease

Ring the correct percent of increase or decrease.

- | | |
|--|---|
| <p>1. Original value: 40
Increase: 5</p> <p>a. 80% b. 8%</p> <p>c. 12.5% d. 25%</p> | <p>2. Original value: 536
Decrease: 96</p> <p>a. 20% b. 17.9%</p> <p>c. 36% d. 8%</p> |
| <p>3. Original price: \$76
New price: \$114</p> <p>a. 25% b. 15%</p> <p>c. 32% d. 50%</p> | <p>4. Original price: \$25
New price: \$20</p> <p>a. 25% b. 20%</p> <p>c. 80% d. 10%</p> |

Write the percent of increase or decrease.

- | | | |
|---|--|---|
| <p>5. _____
Original value: 45
Increase: 4.5</p> | <p>6. _____
Original value: 72
Decrease: 8</p> | <p>7. _____
Original value: 300
Increase: 50</p> |
| <p>8. _____
Original value: 25
New value: 45</p> | <p>9. _____
Original price: \$2.50
New price: \$3.00</p> | <p>10. _____
Original value: 68
Increase: 17</p> |
| <p>11. _____
Original price: \$85.00
Increase: \$15.00</p> | <p>12. _____
Original price: \$120
New price: \$80</p> | <p>13. _____
Original price: \$80
New price: \$120</p> |
| <p>14. _____
Original value: 1,000
New value: 1,325</p> | <p>15. _____
Original value: 400
Decrease: 80</p> | <p>16. _____
Original value: 250
New value: 300</p> |
| <p>17. _____
Original value: 6,000
Decrease: 250</p> | <p>18. _____
Original price: \$19.00
New price: \$25.00</p> | <p>19. _____
Original value: 200
New value: 175</p> |
| <p>20. _____
Original price: \$20
New price: \$35</p> | <p>21. _____
Original value: 1,600
New value: 1,000</p> | <p>22. _____
Original value: 9,000
New value: 10,000</p> |

Reteaching 6-9 Markup and Discount

A store pays \$8 for a basketball. The markup is 60%. Later, they discount the basketball 25%. Find the original selling price and the sale price of the basketball.

Method 1

The markup is 60% of the cost.
 Find 60% of \$8.
 $0.6(8) = \$4.80$
 Store's cost + markup = selling price
 $8 + 4.80 = \$12.80$
 The original selling price is \$12.80.
 The discount is 25% of the original selling price.
 Find 25% of \$12.80
 $0.25(12.80) = 3.20$
 original price – discount = sale price
 $12.80 - 3.20 = 9.60$
 The sale price is \$9.60

Method 2

The selling price equals 100% of the cost plus 60% (the markup) of the cost, or 160%.
 Find 160% of \$8.
 $1.60(8) = \$12.80$
 The original selling price is \$12.80.
 The sale price is 100% of the original price minus 25% of the original price, or 75%.
 Find 75% of \$12.80
 $0.75(12.80) = \$9.60$
 The sale price is \$9.60

Complete each table. Where necessary, round to the nearest cent.

	Cost	Markup	Selling Price
1.	\$17	50%	
2.	\$48	70%	
3.	\$110	85%	
4.	\$87	65%	
5.	\$335	35%	

	Original Selling Price	Discount	Sale Price
6.	\$19	25%	
7.	\$136	15%	
8.	\$849	30%	
9.	\$29.99	40%	
10.	\$2.59	35%	

RIDDLE MATH

HE SAID IT TO HIS SISTERS,
HE SAID IT TO HIS BROTHERS.
WHAT DID THE WITTY RAINDROP
EXCLAIM TO ALL THE OTHERS?

DIRECTIONS:

Use the information given in the chart to figure out the missing values, each of which is indicated by a letter. Round the values to the nearest cent. Find each answer in the code and write the corresponding letter above it.

ARTICLE ON SALE	ORIGINAL PRICE	PERCENT DISCOUNT	SALE PRICE	PERCENT SALES TAX	TOTAL AMOUNT
WATCH	\$50	10%	D	6%	H
CALCULATOR	\$45	25%	E	4%	Y
BICYCLE	\$110	20%	U	5%	N
DVD PLAYER	\$99.00	15%	W	6%	S
TENNIS RACKET	\$59.90	10%	M	4%	R
MP3 PLAYER	\$88.50	30%	A	$5\frac{1}{2}\%$	P
CAMERA	\$78	$33\frac{1}{3}\%$	L	$4\frac{1}{2}\%$	T
PLAYSTATION	\$84.95	40%	O	5%	C

THE WITTY RAINDROP SAID:






\$54.34 \$84.15 \$50.97 \$89.20 \$53.52 \$50.97 \$53.91 \$65.36 \$61.95 \$92.40 \$35.10

\$61.95 \$92.40 \$45 \$54.34 \$47.70 \$56.07 \$33.75 \$33.75 \$89.20

\$61.95 \$53.52 \$52 \$50.97 \$88 \$45

DISCOUNTS AND MARKUPS

Name _____

Fill in the  and the  using the information given:  price and  discount rate or  markup rate. Round to the nearest cent.

34%

\$312.75

93%

28%

\$705.20

\$118.99

33%

\$222.22

\$3,099.00

56%

12%

\$5,900.00

25%

\$64.50

64%

85%

\$945.15

70%

\$73.99

\$101.01

Enrichment 6-9 Markdown

The Shirt Shack is having a 25% markdown sale the first week of the month. This means that the sale price is 25% less than the original price. In the middle of the month Shirt Shack marked down the sale shirts another 15%.

1. Do you think a markdown of 25% followed by another markdown of 15% is the same as a single markdown of 40%? Explain.

2. For question 1, which do you think is the better buy and why?

3. What is the sale price of a \$25 shirt first marked down 25% and then marked down another 15% (to the nearest cent)?

4. What is the sale price of a \$25 shirt marked down 40%?

5. Compare your answer to question 1 and 2 with your results for questions 3 and 4. How would you now answer questions 1 and 2?

6. Successive markdowns of 25% on a \$25 shirt and then 15% are equal to a single markdown of what percent? Explain how you would solve the problem using a calculator. Then solve.

7. The Shirt Shack is giving a 50% markdown on sweatshirts. The store, Terrific Tops, has marked the same sweatshirt down three times: 25%, 20%, and 15%. If the shirt originally sold for \$35, which store has the better buy? What was the final price at each store.

Practice 7-8 Simple and Compound Interest

Find each balance.

	Principal	Interest rate	Compounded	Time (years)	Balance
1.	\$400	7%	annually	3	
2.	\$8,000	5%	annually	9	
3.	\$1,200	4%	semi-annually	2	
4.	\$50,000	6%	semi-annually	6	

Find the simple interest.

5. \$900 deposited at an interest rate of 3% for 5 years

6. \$1,348 deposited at an interest rate of 2.5% for 18 months

Complete each table. Compound the interest annually.

7. \$5,000 at 6% for 4 years.

Principal at beginning of year	Interest	Balance
Year 1: \$5,000		
Year 2:		
Year 3:		
Year 4:		

8. \$7,200 at 3% for 4 years

Principal at beginning of year	Interest	Balance
Year 1: \$7,200		
Year 2:		
Year 3:		
Year 4:		

SIMPLE INTEREST

Who said, "I shall return."?

Name _____

After figuring the simple interest for the following information, find the amount at the bottom of the page and put the corresponding letter above it to find the answer to the question. Round to the nearest cent. (You may wish to use a calculator.)

Principal	Interest Rate Per Year	Time	Interest Earned
\$398.75	18%	13 1/2 years	A
\$420.10	12 1/8%	19 years	L
\$875.00	6 3/4%	8 3/4 years	H
\$1,342.38	11.6%	6 months	R
\$2,134.77	9%	5 years	U
\$986.50	6.8125%	2 1/4 years	A
\$880.25	22%	4 years, 1 month	A
\$699.99	7%	18 years	E
\$3,000.00	10 7/8%	15 months	L
\$719.30	16.05%	3 years, 11 months	U
\$566.78	13%	8 years	A
\$410.50	19 1/2%	9 months	R
\$315.00	28%	42 years	R
\$600.00	8 5/8%	7 years, 5 months	E
\$443.62	23%	13 years	O
\$1,050.00	16%	36 months	T
\$812.20	17.35%	20 months	S
\$5,000.00	18.15%	3 months	N
\$113.17	25 1/4%	28 years	C
\$386.49	20%	4 years	D
\$78.00	19.3%	5 years, 3 months	G
\$2,046.00	7 1/4%	8 months	M
\$525.15	11%	39 years	G

- | | | | | | | |
|----------|------------|----------|------------|----------|----------|----------|
| \$79.03 | \$881.99 | \$226.88 | \$383.81 | \$77.86 | \$589.45 | \$407.81 |
| \$309.19 | \$1,326.42 | \$960.65 | \$2,252.89 | \$967.81 | \$790.76 | \$234.86 |
- | | | | | | | | | |
|---------|----------|----------|----------|------------|-------|----------|----------|---------|
| \$98.89 | \$151.21 | \$800.11 | \$968.96 | \$3,704.40 | \$504 | \$516.80 | \$452.17 | \$60.04 |
|---------|----------|----------|----------|------------|-------|----------|----------|---------|