

NAME _____

Module 7 Ratio, Proportion, and Percent
Lesson 5 Percent Proportions

Independent Practice

7.5

Use the percent proportion to write each fraction as a percent.

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

30%

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

40%

3. $\frac{1}{20}$

5%

4. Mindy collected 40 apples at a farm festival. Her mom used 24 of the apples to make apple pies. What percent of Mindy's apples was used to make pies?

Sixty percent of Mindy's apples were used in the pies.

Estimate.

5. 18% of 25

About 5

6. 92% of 500

About 450

7. 33% of 610

About 200

Solve.

8. Gia bought sneakers that cost \$59. Estimate the amount of sales tax she paid if the sales tax in her state is 5%. Then, find the actual amount.

Estimate: \$3.00 Actual amount: \$2.95

9. For lunch, Gary ordered a turkey sandwich for \$6 and an iced tea for \$1.50.

- a. He wants to leave the waiter a 20% tip. How much gratuity should Gary leave?

A 20% gratuity is \$1.50.

- b. Gary has to pay 4% tax on his lunch. How much tax will he pay?

Sales tax is \$0.30.

10. Charity makes and sells candles. The markup is 150% of what it costs her to make them. It costs her \$2.80 to make a small candle and \$3.50 to make a large candle. Find the selling price of each size of candle.

Small candle: \$7 Large candle: \$8.75

11. In the fall, the manager of a clothing store sells the remaining summer clothes for 80% off. Graham bought a pair of shorts originally marked \$38. What is the discount? How much will he pay for the shorts?

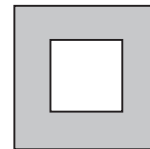
Discount: \$30.40 Amount paid: \$7.60

Journal

1. Tell how the percent proportion is different than other proportions. Then, explain how to use the percent proportion to write $\frac{3}{4}$ as a percent.
2. Explain why a markup can be greater than 100%, but a discount can not be.
3. The markup on a book is 90% of what it cost to produce the book, which was \$3.20. Dylan said that means the book will sell for \$2.88. What error did Dylan make? How much will the book sell for?
4. When will a discount equal the new selling price of an item? When will a discount be greater than the new selling price of an item? Use examples in your explanations.

Cumulative Review

1. The perimeter of the large square is 16 inches. The perimeter of the small square is 8 inches. Find the area of the shaded region.



12 square inches

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Evaluate.

2. $\sqrt{900} - 3^2$

21

3. $25^2 + 1^2$

626

Find the decimal and percent equivalents.

4. $\frac{9}{20}$

Decimal: 0.45
Percent: 45%

5. $\frac{7}{60}$

Decimal: $0.1\overline{16}$
Percent: $11\frac{2}{3}\%$ or 11.67%

Determine if the ratios are in proportion.

6. $\frac{10}{12}$ and $\frac{20}{24}$

YES
 $10 \times 23 = 12 \times 20$
 $240 = 240$

7. $\frac{3}{4}$ and $\frac{6}{7}$

NO
 $3 \times 7 \neq 4 \times 6$
 $21 \neq 24$

8. Alisa typed 50 words in two minutes while Jeremy typed 90 words in three minutes. Use unit rates to determine who typed at a faster rate.

Alisa: 25 words/min Jeremy: 30 words/min
Jeremy typed at a faster rate.

Possible Journal Answers

1. The percent proportion is different than other proportions in that the denominator of one of the fractions is always 100. To use the percent proportion to find the percent equivalent of $\frac{3}{4}$, write $\frac{3}{4}$ as one ratio and $\frac{?}{100}$ as the other.

The proportion is then $\frac{3}{4} = \frac{?}{100}$. Find the unknown. Since four times 25 equals

100 in the denominators, multiply three by 25 in the numerator: $\frac{3 \times 25}{4 \times 25} = \frac{75}{100}$.

This means that $\frac{3}{4}$ is equal to 75 out of 100, or 75%.

2. A markup can be greater than 100% because a markup is an amount added to the cost of an item. There is no limit on the selling price of an item can sell for. A discount cannot be greater than 100% because a discount of 100% means that the amount of discount equals the original cost, so the item is \$0, or free. Free is the cheapest an item can be. There is no such thing as a negative cost.
3. Dylan found 90% of \$3.20 which is the amount of markup on the book. The selling price of the book is the cost to produce the book plus the amount of markup. Dylan forgot to add \$2.88 and \$3.20. The book will sell for \$6.08.
4. A discount will equal the new selling price when the price is reduced by 50%. For example, if a \$10 shirt is reduced 50%, the discount is \$5, and the new selling price is \$10 – \$5, or \$5. A discount will be greater than the new selling price when the price is reduced by a percent greater than 50%. For example, if a \$10 shirt is reduced 90%, the discount is \$9 and the new selling price is \$10 – \$9, or \$1.