# Solving Percent Problems

Student Activity

Name _____

Class _____

Open the TI-Nspire™ document *Solving_Percent_Problems.tns.*

We use percents every day. The weatherman announces the percent chance of precipitation for the day each morning. Athletic statistics are reported using percentages such as batting averages. In stores, percent discounts are used to announce sales. Sales taxes on everything you buy are calculated as percentage of total. In this activity, you are going to use technology to solve various percent problems.
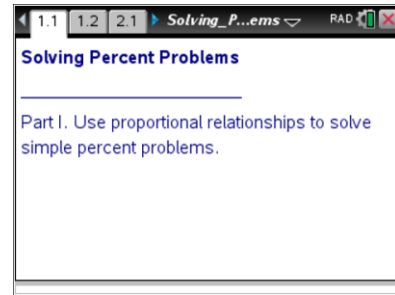
Move to page 1.2.

The girls' basketball team attempted 20 free throws in a game. The larger rectangle represents the total number of attempted free throws. The shaded rectangle represents the number of free throws made.

1. How does the area of the shaded rectangle compare to the area of the large rectangle?

2. Grab and drag the point on the top of the rectangle to answer the following questions:

    a. If the team scored on 12 free throws, what percent of their shots did they make?

    b. What fraction(s) can be used to represent 60%?

    c. What is the decimal representation of 60%?

    d. How many free throw shots did the team make if they made 70% of their shots?

    e. How many shots would they make if the team had made 90% of their shots? How many free throws would they miss?

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Now you will apply your knowledge of percents to solve multi-step percent problems.

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There are 50 fish in a small stocked pond. The Game and Fish Department adds fish to the pond. As a result, the total number of fish is now 140% of the original number.

3. Grab and drag the point on the top of the rectangle to answer the following questions.
   a. How many fish are now in the pond?

   b. How many fish were added to the pond?

   c. What is the visual representation of 140%? Draw the picture you see on your calculator. Why does the blue rectangle get longer than the white rectangle?

   d. Use the number of fish to write a ratio that represents 140%.

Grab and drag the point on the bottom of the rectangle to indicate that the total number of fish in the pond is now 70 fish.

4. Some of the fish in the pond are caught the next week, and only 28 fish remain in the pond. Grab and drag the point on the top of the rectangle to find the new percentage of the total.
   a. What percentage of fish have been caught?

   b. What is the base (the total number you started with) in your calculations?

   c. What is the rate (the decimal representation of the percentage) in your calculations?

Move to page 2.3.

5. It is your best friend's birthday, and you treat him/her to lunch. The bill is $20. Grab and drag the point on the top of the rectangle to answer the following questions:
   a. The waitress provided excellent service and you want to leave a 15% tip. How much tip should you leave?

   b. What does the equation shown on Page 2.3 represent?

   c. What is the base in this equation? Why?

d.   What is the rate in this equation? Why?

e.   What is the percentage in this problem?

f.   With the tip included, what is the total bill? What percent of the original bill is the total bill that includes the tip?

Move to page 2.4.

6.   While shopping, Courtney finds a dress she likes at Store A for $50 at a discount of 60%. She finds the same dress at Store B for $40 at a discount of 50%. Grab and drag the point on the bottom of the rectangle to change the cost of the dress before the discount. Grab and drag the point on the top of the rectangle to find percentage of the cost.
   a.   Where should she buy the dress? Why?

   b.   What equation is used to calculate 40% of $50? What are the base, the rate, and the percentage in this equation?

   c.   What equation is used to calculate 50% of $40? What are the base, the rate, and the percentage in this equation?

7.   Describe how you can find percentage given base and rate.

8.   Courtney continues shopping for shoes in another store. She finds dress shoes and sandals that she likes at the same original price of $40. She has a 20% off coupon that she can use on the dress shoes that are already marked down 20%. The sandals are marked 40% off, but the store will not accept the coupon on the purchase of the sandals. She can only buy one pair of shoes, and she wants to spend least amount of money.
   a.   What is the discounted price of the dress shoes?

   b.   What is the price of the dress shoes with the coupon?

c. What is the discounted price of the sandals?

d. Is there a difference in the price of the shoes? Why?

9. You are now going to shop for a hoodie. In the store, you find two hoodies that you like at the same original price. The first hoodie is marked down 15% and the second hoodie is marked down 25%. You have a coupon for 10% that can only be applied to the first hoodie.

a. Record the price of these hoodies below. Choose the price between $20 and $60.

The original price of each hoodie is $ _____.

b. What is the discounted price of the first hoodie? What is the base, and what is the rate in the equation?

c. What is the price of the hoodie with the coupon? What is the base, and what is the rate in the equation?

d. What is the discounted price of the second hoodie? What is the base, and what is the rate in the equation?

e. Is there a difference in the price of the hoodies? Why?