

# Smart Shoppers

6684

## Introduction

In this activity, students will compare ratios with different denominators, and then with common denominators. They will also find unit rates.

## Grades 6-8

### NCTM Number and Operations Standards

- Compute fluently and make reasonable estimates
- Develop, analyze, and explain methods for solving problems involving proportions, such as scaling and finding equivalent ratios

### Files/Materials Needed

None

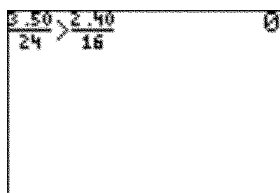
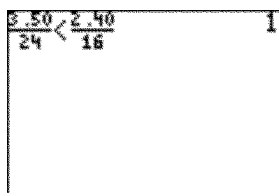
## PART 1 COMPARING RATIOS

1

- Launch TI-Navigator™ on the computer and start the session.
- Have each student log into NavNet and then exit to the home screen.

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- Explain to students that they will be using a variety of strategies to compare ratios with different denominators. Tell students that two boxes of cereal have the following costs and volumes:  
Option 1: \$3.50 for 24 ounces  
Option 2: \$2.40 for 16 ounces
- Instruct students to express Option 1 as a rate on their calculator. Then, press  $\boxed{2\text{nd}}\boxed{\text{TEXT}}$  and choose either  $<$  or  $>$  followed by the rate for Option 2. Their choice of inequality symbol should be based on their estimate as to which rate is smaller. The two possibilities are shown.



- Explain to students that a value of 1 means the statement is true and a value of 0 means the statement is false. Therefore, the results indicate that the \$3.50 size cereal box is the better deal since its rate is less than the rate for the 16-ounce size.
- Follow up with several other scenarios, using **Screen Capture** each time to review student results.

## PART 2 WRITING EQUIVALENT RATIOS

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- Tell students that it is sometimes preferable to rewrite two ratios with the same denominator in order to compare them, especially if it can be done with mental math. Consider the two cereal boxes in Part I.
- Have students use mental math to find the least common multiple (LCM) of 24 and 16.
- Instruct students to express cereal Option 1 as a rate on their calculator. Then, press  $\boxed{2\text{nd}}\boxed{\text{TEXT}}$  and choose  $=$  followed by an equivalent rate with the LCM and press  $\boxed{\text{ENTER}}$ . A result of 1 indicates that they found the correct equivalent rate.
- Have students repeat this procedure to find an equivalent rate for Option 2.

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- e. Finally, tell students to write an inequality for the two new ratios. Use **Screen Capture** to review student results. These screen images show the equivalent ratios and the comparison of each written with the LCM of 48.

5.50 7  
24 48

2.40 7.20  
16 48

7 7.20  
48 48

## **PART 3** WRITING UNIT RATES

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- Tell students that when a calculator is available, expressing rates as unit rates is often the easiest method to determine the better buy.
- Have students find the unit rate for each cereal choice and use **Screen Capture** to view their results. Make it clear that the unit rate gives the price for each unit of product (ounces for the cereal example). By dividing, they will find that the 24-ounce package costs about 14.6¢ per ounce and the 16-ounce package costs 15¢ per ounce.
- Give students additional practice problems to compare rates.

## **EXTENSION**

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Ask students to write down some product prices next time they are at the grocery store. Remind them that they should look for the prices of products that come in a variety of sizes. You may also want to ask them to write down the unit price, which is often found on the grocery shelf. They can share their findings with the class and students can decide on the best method for determining the better deal. You might also want to ask students on what occasions they might intentionally choose to purchase a product that has a higher unit rate.