

Activity 8

Thrift Store
Markdowns

Concepts/Skills

- ◆ Fractions
- ◆ Proportional reasoning
- ◆ Problem solving

Materials

- ◆ TI-15
- ◆ Student Activity pages (pp. 54 - 56)
- ◆ Chart paper
- ◆ Markers
- ◆ Using the TI-15 (p. 57)

Overview

Students will calculate a series of discounts using increasing unit fractions.

Focus

- ◆ Describe the following scenario to the students. A storeowner is interested in getting rid of some merchandise. He decides to discount the price by \$1 each week. For example, a shirt that sells for \$15.00 will be marked down to \$14.00 the first week, \$13.00 the second week, and so on. If he continues in this way, when will he give the shirt away?
- ◆ Have the students work through the problem. Ask the students to come up with an alternative since the storeowner does not really want to give merchandise away.

First Things First

For students not ready for the open-ended problem, start with the *First Things First* activity page.

Presenting the Problem

Have students read the *Thrift Store Markdowns* activity page. Make sure they understand the final product and the required presentation.

Evaluating the Results

Have students share the charts they created. Have them determine if the calculations used are the same or different.

Discuss the similarities and differences between the charts and the calculation methods.

Have students evaluate how the TI-15 helped solve this problem



Name _____
Date _____

Activity 8

Thrift Store Markdowns: First Things First

The Problem

After shopping for hours, you find the same shirt at two different stores. In store #1, the original price is \$24.00 and it is marked $\frac{1}{3}$ off. In store #2, the original price is \$20.00 and it is marked $\frac{1}{5}$ off. Where should you buy the shirt?

On the same shopping expedition you find jeans at two different stores. At the first store, the original price of the jeans is \$34.00 and they are marked down $\frac{1}{4}$. At the second store, the original price of the jeans is \$37.00 and they are marked down $\frac{1}{3}$. Where should you buy the jeans?

Working the Problem

One way to calculate the price is to use parentheses.

1. Enter $24 \text{ () } 24 \text{ () } 1 \text{ () } 3 \text{ () } \text{Enter}$. This gives the price at the first store. What is the price?

How much do you save at store #1?

2. Enter $20 \text{ () } 20 \text{ () } 1 \text{ () } 5 \text{ () } \text{Enter}$. This gives the price at the second store. What is the price?

How many dollars do you save at store #2?

3. Where should you buy the shirt?
4. Now look at the prices for the jeans in the two stores. How will you set up the TI-15 for these prices?

Calculate the sale prices at the two stores.

Store #1:

Store #2:

5. Where should you buy the jeans?



Name _____

Date _____

Activity 8

Thrift Store Markdowns

The Problem: How many weeks of markdowns will it take for the furniture at the thrift store to be half price?

Mrs. Nguyen, the manager of the local hospital's thrift store, discounts furniture by increasing amounts each week. The amount reduced varies depending on the item. She wants to know how many weeks it will take before the furniture is marked down to half of the starting price. For example, she may deduct $\frac{1}{20}$ after the first week, $\frac{1}{19}$ after the second week, $\frac{1}{18}$ after the third week, and so on.

The Facts

- ◆ Each time Mrs. Nguyen receives a piece of furniture in the thrift shop, she gives it a price.
- ◆ Each week the item remains in the thrift shop, she reduces the price.
- ◆ Sometimes the price reductions are $\frac{1}{20}$, $\frac{1}{19}$, $\frac{1}{18}$, $\frac{1}{17}$, and so on.
- ◆ Sometimes the price reductions are $\frac{1}{15}$, $\frac{1}{14}$, $\frac{1}{13}$, $\frac{1}{12}$, and so on.
- ◆ Sometimes the price reductions are $\frac{1}{12}$, $\frac{1}{11}$, $\frac{1}{10}$, $\frac{1}{9}$, and so on.
- ◆ The price reductions stop when the sale price is about $\frac{1}{2}$ of the original price.

The Task

1. Your team will make a chart showing the following information:
 - Beginning price for one piece of furniture
 - Reduced prices of the piece of furniture using each of the three different discount patterns
 - Fraction amount and dollar amount of the price reduction each week
 - Number of weeks before the price is about $\frac{1}{2}$ of the original price for each of the three discount patterns
2. Each team member will write an explanation of the team's work, answering these questions:
 - What patterns did your team find in the calculated numbers? Why do you suppose the patterns occurred?

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- How many weeks did it take to get to $\frac{1}{2}$ the original price? Did all of the discount patterns take the same number of weeks to get to $\frac{1}{2}$ the original price? Why do you suppose that happened?
 - Which of the three price discounts do you think is the best? Explain your answer.
3. Your team will present this information to the class. Be prepared to explain how you calculated each amount and to discuss the patterns you found.



Using the TI-15

Activity 8

Thrift Store Markdowns

$$24 \text{ [] } (\text{ [] } 24 \text{ [] } \times \text{ [] } 1 \text{ [] } \frac{\text{[]}}{\text{[]}} 3 \text{ [] } \bar{\text{d}} \text{ [] })$$

[] Enter []

$$24 - (24 \times \frac{1}{3})$$

$$16$$

Or

$$24 \text{ [] } \times \text{ [] } 1 \text{ [] } \frac{\text{[]}}{\text{[]}} 3 \text{ [] } \bar{\text{d}} \text{ [] } \text{ [] } \underline{\text{Enter}}$$

$$24 \times \frac{1}{3} = 8$$

$$24 \text{ [] } - \text{ [] } 8 \text{ [] } \text{ [] } \underline{\text{Enter}}$$

$$24 - 8 = 16$$