

# Discount Savings

5618

## Introduction

This activity helps students develop an understanding of sale information to compute discounts, discount rates, original prices, and sale prices.

## Grades 9-12

### NCTM Algebra Standards

- Use mathematical models to represent and understand quantitative relationships
- Identify essential quantitative relationships in a situation and determine the class or classes of functions that might model the relationships

### Files/Materials Needed

*Discount.act*

1

- Instruct students to complete the 20% discount table. Lead them to the idea that the table feature of the calculator might be useful with this problem.
- You may need to suggest  $0.20x$  be entered in Y1 and  $x - 0.20x$  be entered in Y2.
- Some students might even use  $0.80x$  as a function for the sales price in Y2.

2

- Launch TI-Navigator™ on the computer and start the session.
- Have each student log into NavNet on their calculator.

3

- Load the activity settings file *Discount.act*.
- Instruct students to think of an item less than \$100 they want to purchase. Instruct students to compute the discount and sale price for their item using the 20% from Step 1.
- Select the **Graph** tab and start the activity.
- Instruct students to press **SEND** to submit the original cost and the discount for that item. The points displayed in Activity Center should all be on the line  $y = 0.20x$ . Discuss any errors as needed.
- Clear the activity data and restart the activity. Instruct students to submit their estimate of the original cost and the sales price for their item. The points displayed should all be on the line  $y = 0.80x$ . Discuss any errors as needed.

4

- Use **Quick Poll** (with *Open Response*) to ask:
  - *What would the discount be for an item that was originally \$40?*Discuss the results as needed.
- Use **Quick Poll** (with *Multiple Choice A thru D*) to ask:
  - *How can you find the sale price for an item that originally cost \$25?*
    - Multiply 25 by 0.20*
    - Multiply 25 by 0.80*
    - Multiply 0.25 and 20*
    - Multiply 0.25 and 80*Discuss the results as needed.

5

- Have students log out of NavNet and complete the 40% discount table.
- You may need to suggest  $0.40x$  be entered in Y1 and  $x - 0.40x$  be entered in Y2.
- Some students might even use  $0.60x$  as a function for the sales price in Y2.

# Discount Savings

## 6

---

- a. Have students log back into NavNet.
- b. Change the Window Settings to **X Max 200** and **Y Max 150**.
- c. Instruct students to think of an item less than \$200. Instruct students to compute the discount and sales price for their item using the 40% from Step 5.
- d. Select the **Graph** tab and start the activity.
- e. Instruct students to press **SEND** to submit the original cost and the discount for that item. The points displayed in Activity Center should all be on the line  $y = 0.40x$ . Discuss any errors as needed.
- f. Clear the activity data and restart the activity. Instruct students to submit the original cost and the sales price for their item. The points displayed should all be on the line  $y = 0.60x$ . Discuss any errors as needed.

## 7

---

- a. Use **Quick Poll** (with *Open Response*) to ask:
  - *What would the sale price be for an item that was originally \$60?*Discuss the results as needed.
- b. Use **Quick Poll** (with *Multiple Choice A thru D*) to ask:
  - *How can you find the sale price for an item that originally cost \$42?*
  - A) Multiply 42 and 0.40
  - B) Multiply 42 and 0.60
  - C) Multiply 0.42 and 60
  - D) Multiply 0.42 and 40Discuss the results as needed.

## 8

---

Have students complete the student activity sheet.

# Discount Savings

## Student Activity Sheet

Jake's Sporting Goods is having a sale. Use your calculator to create a table that displays the discount and sale price for items originally costing \$20, \$30, \$40, etc., up to \$100 for a sale when all items are reduced by 20%.

Original Price	20% Discount	Sale Price
\$20		
\$30		
\$40		
\$50		
\$100		
x (any original price)		

1. What would the discount be for an item that was originally \$40?
2. What would the sale price be for an item that was originally \$60?
3. What was the original price for an item you can buy for \$72 during this sale?
4. How can you find the sale price for an item that originally cost \$25?
5. How can you find the sale price for an item that originally cost \$42?

Repeat your steps for a sale when all items are reduced by 40%.

Original Price	40% Discount	Sale Price
\$20		
\$30		
\$40		
\$50		
\$100		
x (any original price)		

6. What would the discount be for an item that was originally \$40?
7. What would the sale price be for an item that was originally \$60?
8. What was the original price for an item you can buy for \$72 during this sale?
9. How can you find the sale price for an item that originally cost \$25?
10. How can you find the sale price for an item that originally cost \$42?

11. Suppose you have \$24.50 to spend. Find the original price of the most expensive item you can afford during the 40% off sale.

12. Write a one-step rule to find the sale price for any item during a 40% off sale, using  $x$  as the original price.