

Activity 5: How Much Will It Cost?

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CALCULATORS: Casio: *fx-260 Solar* • Casio: *fx-260 Solar School*

Teaching Notes

Grade Level: Middle School

Topic: Percent

Objective: To compute add-ons and discounts on prices.

Using the Activity:

The focus of this activity is to instruct students on how to use the calculator to find add-ons or mark-ups and discounts on prices. Typically, students would find the given percent of a price and in the case of an add-on, add it to the original price, or in the case of a discount, subtract it from the original price. The activity offers students two different ways to handle the add-on or discount situation on the *fx-260* calculator. The first method is:

Price \times rate shift % + for add-on

Price \times rate shift % – for discount

The sequence has the calculator compute the actual add-on or discount when the percent key is pressed and automatically add it or subtract it from the price when either the + or – key is pressed.

The second method involves reasoning that, if a price is marked up or added on to, you are paying the entire price (100%) plus an additional percent. The two percents are added together, and that percent of the price is computed. Conversely, for discount, you are paying less than the total cost (100%); therefore, the two percents are subtracted and that percent of the price is computed.

When finding percent of money, the calculator will often display answers to more than two decimal places. Students should round answers to the nearest cent of hundredths place.

Answers:

1. A television sells for \$375.00 plus 6% sale tax. Final cost \$397.50
2. The bill for dinner at a restaurant is \$65.00 an 18% tip. Final cost \$76.70
3. A shirt sells for \$24.00 before a 20% discount. Final cost \$19.20
4. Which is a better buy: a \$480.00 television offered at a 30% discount or a \$420.00 television offered at a 20% discount? They are the same price, \$336.00.
5. Is a discount of 15% followed by a discount of 10% equal to a single discount of 25%?

For this question, students explore successive discount – discounts on items already discounted. A common mistake students make is to add the percents together and find that percent of the price for the answer. This gives a different result than first taking 15% of a price and then 10% of the resulting price. Suggest to students that they should actually select a price, such as \$40.00, and discount first by 15% and then take 10% of that result. Next, they should take 25% of \$40.00 and compare their results.

Extension:

Explore beginning with \$25.00, marking up the price by 20%, and then discounting the resulting price 20%. How does the result compare to the original price of \$25.00?

\$25.00 increased 20% is \$30.00. \$30.00 reduced by 20% is \$24.00, or \$1.00 less than the original amount.

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Student Worksheet Activity 5

When you visit stores, the final selling price needs to be adjusted before you make your way to the cashier. Prices are adjusted up by the addition of sales tax, or adjusted down by the subtraction of a discount.

Calculators can be used to find the final price you'll end up paying for a product. There are two methods that can be used on the *fx-260* calculator.

SALES TAX:

A watch sells for \$40.00. The store must charge 6% state sales tax. What is the final cost of the watch?

Method One: You'll need to add 6% onto the original price.

Enter: **40** × **6** **shift** % **+**

The calculator displays 2.4 (the tax) when **shift** % is pressed and the final answer of 42.4 when the **+** is pressed. Since the answer is money, it would be recorded as \$42.40.

Method Two: Think about paying 100% of the cost of the watch plus an additional 6% or 106% of \$40.00.

Enter: **40** **106** **shift** %

The calculator displays 42.4.

DISCOUNT:

A dress sells for \$78.00. The store has a 15% off sale. What is the final cost of the dress?

Method One: Think about subtracting 15% of the original price.

Enter: **78** × **15** **shift** % **-**

The calculator displays 11.7 (the discount) when **shift** % is pressed, and 66.3, the cost when **-** is pressed.

Method Two: Think about paying 100% of the cost less 15% of the cost or 85%.

Enter: **78** **85** **shift** %

The calculator displays 66.3.

Name _____ Date _____

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Student Worksheet Activity 5 (continued)

Use your *fx-260* calculator to find the final cost of each item.

1. A television sells for \$375.00 plus 6% sale tax.

Final cost: _____

2. The bill for dinner at a restaurant is \$65.00 an 18% tip.

Final cost: _____

3. A shirt sells for \$24.00 before a 20% discount.

Final cost: _____

4. Which is a better buy: a \$480.00 television offered at a 30% discount or a \$420.00 television offered at a 20% discount?

5. Is a discount of 15% followed by a discount of 10% equal to a single discount of 25%? (Include your reasoning in your response.)
