SELLING PRICE

Performance Standard 6D.H

Calculate the original pricing of a computer game, to allow for the percentage of profit desired.

- *Mathematical knowledge*: Determine costs after percentage decrease;
- *Strategic knowledge*: Solve problem using systematic process
- *Explanation*: explain completely what was done and why it was done.

Procedures

1. Provide students with sufficient learning opportunities to develop the following in order to solve problems using comparison of quantities, ratios, proportions, and percents.
   - Solve problems that involve percents, including percent increase and decrease, regardless of information that is missing.
2. Give students the assessment sheet, and have them work individually. They may use calculators, but must explain their calculations on their sheet.

   A store is having a sale. They have advertised 10% off everything in the store. They also have just purchased a new shipment of computer games. These games cost the store $32.11 each. They want to price the game so that they will make at least a 40% profit, even at the sale price. What is the lowest **regular** selling price for the game that will allow this profit?
3. Use the standard scoring rubric. Give each student a score in each of the three categories. A score of 4 should indicate completely correct solutions to all parts of the problem, with complete and correct justifications of their reasoning. A three should represent correct or nearly correct solutions to all parts, with only minor computational errors making their solutions inaccurate, their rationale should be sound, but may not be completely explained. A two would indicate that students have some idea about how to answer the questions, but make major errors in computation and or reasoning that effect their answers. A one may have a correct answer for one part, but generally shows little understanding in their rationale for their procedures and processes. A score of zero generally reflects no correct responses and no logical rationale for their procedures and processes.
4. Minor errors in computation include making errors in the actual addition or multiplication, rounding incorrectly. Major errors include using the wrong operations or formulas to relate terms.
5. The lowest possible regular price is $49.95. This will allow the sale price of 10% off to be 45.96 which is 140% of the cost of $32.11, that was given. In each case the price was rounded up to make sure that the store made a minimum of their 40% profit. Students who take the percentage of the wrong price, or who use the wrong operation should receive no more than a 2 on this item. Students who do not round appropriately may receive a three, but not a four in mathematical knowledge.

Examples of Student Work follow

Resources

- Copies of the "Selling Price" task sheet
- Pencil
- Calculator
- Mathematics Rubric

Time Requirements

- One class period

NAME _____ DATE _____

SELLING PRICE

Student Task Sheet

Solve the following problem. Make sure to completely explain your reasoning.

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$32 \cdot 1.4 = 90\%r$

$32.11 \cdot 1.4 = 44.954$

$\frac{44.954}{.9} = 49.948 \approx 49.95 = r$

First. I set up the equation $32.11 \cdot 1.4$ equals $90\%r$ to represent that 10% off the regular price is a 40% profit of the $32.11 games. In the equation r = regular price of the game, the answer to the problem. Then 32.11 by 1.4 to find that $44.954 is a 40% profit of $32.11. That means that 10% of the regular price (r) is $44.954.

Then I divided 44.954 by .9 because that means that $44.954 is 90% of r. I got 49.94\overline{8}$ as the answer, then I rounded it to $49.95 for the regular sales price.

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SELLING PRICE

Student Task Sheet

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32.11
3.211
x 4
12.844
12.85

32.11
+ 12.85
44.96 ← Sale price

$\frac{44.96}{x} = \frac{9}{10}$

49.95 ÷ 10 = 4.995
49.95
− 4.995
44.955 or 44.96

49.95

In order to find the lowest regular selling price for this computer game, you must first consider the profit. The store pays $32.11 for a game and they want to make a 40% profit so the sale price is 40% more than $32.11. To do this you take 10% of 32.11 which is 3.211 and multiply it by four. Take that product and add it to 32.11 to find $44.96. This is the lowest you could sell this for and still make a 40% profit. In order to put it on sale for 10% you need to add 10% to $44.96. This also means that $44.96 is 90% of the regular price. So $\frac{44.96}{x} = \frac{9}{10}$. This also means that $\frac{10}{10}$ or 1 equals 49.95. To check this you take ten percent off of 49.95 which

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is 49.95 - 4.995. This equals 44.955 or 44.96. Sence 44.96 is the lawest price you could sell it for withaut making less than a 40% profit. So in the end you sell the game for $49.95 and take 10% off because of the sale. That is $44.96 which gives them a 40% profit because they bought it for $32.11. The regular selling price is 49.95