

A scooter that regularly sells for \$84 is on sale for 40% off the original price with an additional 25% off the discounted price. What is the final sale price of the scooter?

For letters A through G, state whether or not each initial step could be used to find the final sale price of the scooter.

A  $84 \cdot 0.4 =$   Yes  No

E  $84 \cdot 0.6 =$   Yes  No

B  $84 \cdot 0.65 =$   Yes  No

F  $84 - 65 =$   Yes  No

C  $84 - 40 =$   Yes  No

G   Yes  No

D  $84 \cdot 0.25 =$   Yes  No

### Scoring:

Responses to this item will receive 0 – 2 points based on the following:

2 points: YNNYYNY The student has an excellent understanding of the concept of discount and where to begin solving.

1 point: YNNNYNY, YNNNNNY, YNNNYNN The student has a basic understanding of the concept of discount and where to begin solving.  
YNNYYNN, YNNYNNY

0 points: All other combinations of choices.

### Key and Distractor Analysis:

A. **Key.** Multiplies the original price by 0.4, or 40%.

B. Adds the percentages together and multiplies the original price by 0.65 or 65%.

C. Subtracts 40, not 40%, from the original price.

D. **Key.** Multiplies the original price by 0.25 or 25%.

E. **Key.** Multiplies the original price by 0.6 or 60%, eliminating the need to subtract after multiplying.

F. Adds the percentages together and subtracts 65 from the original price.

G. **Key.** Proportional model showing 40% off the original price.

## Ratios and Proportional Relationships

7.RP

**Analyze proportional relationship and use them to solve real-world and mathematical problems.**

- Use proportional relationships to solve multistep ratio and percent problems.  
Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

A few years ago, a skateshop originally sold a skateboard for \$96. Today the same skateboard is sold with a markup of 25%. How much does the skateboard cost today?

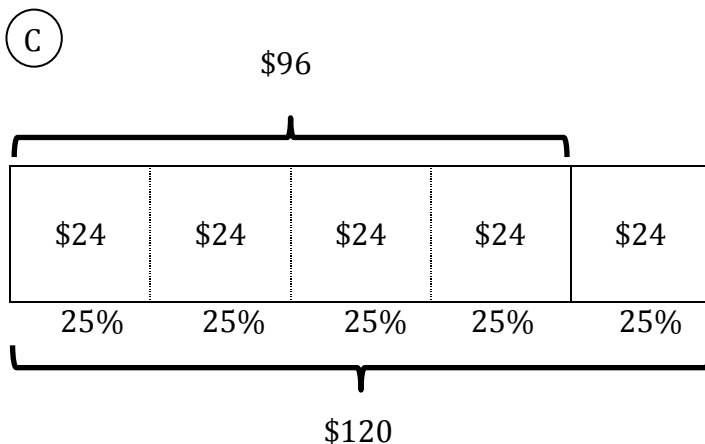
Indicate which methods and solutions below are correct.

(A) \$24

(D) \$120

(B)  $x = (25\%)(\$96)$

(E)  $\frac{x}{96} = \frac{25}{100}$



**Scoring:**

2 points: Selected C and D only.

1 point: Selected either C or D only.

Selected either C or D and only one other wrong answer.

0 points: Any other combination.

**Key and Distractor Analysis:**

A. Student probably just found the amount of the markup and thought that was the answer.

B. This equation will find the amount of the markup but not the cost today.

C. Key. Using a bar model to visually see the original price, markup, and cost today.

D. Key. This is the cost of the skateboard after the markup of \$24.

E. This proportion will find the amount of the markup but not the cost today.

**Ratios and Proportional Relationships**

**7.RP**

Analyze proportional relationships and use them to solve real-world and mathematical problems.

3. Use proportional relationships to solve multistep ratio and percent problems. Examples: *simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.*