

Display Master: Key Idea: Find the Missing Value by Using Cross Products

- Cross products can be used to find a missing value in a proportion by setting the numerators equal to each other and solving the equation.

Display Master: Bags of Candy A

At the grocery store, Lisa can buy 2 bags of candy for \$8. How many bags of candy can Lisa buy with \$20?

$$\frac{\text{Bags}}{\text{Dollars}} = \frac{2}{8} \times \frac{\quad}{20}$$

Times what?

Display Master: Bags of Candy B

Bags
Dollars

$$\frac{2}{8} = \frac{x}{20}$$

$$8 \bullet x = 8x$$

Display Master: Bags of Candy C

$\frac{\text{Bags}}{\text{Dollars}}$	$\begin{array}{ccc} 40 & & 8x \\ \diagup & \diagdown & \\ 2 & = & x \\ \diagdown & \diagup & \\ 8 & = & 20 \end{array}$
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$$8 \cdot x = 8x$$

$$20 \cdot 2 = 40$$

Display Master: Bags of Candy D

$\frac{\text{Bags}}{\text{Dollars}}$	$\begin{array}{ccc} 40 & & 8x \\ & \diagdown & \diagup \\ & \times & \\ & \diagup & \diagdown \\ 2 & = & 20 \\ & \diagdown & \diagup \\ 8 & & \end{array}$
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$$40 = 8x$$

Display Master: Bags of Candy E

$$\frac{\text{Bags}}{\text{Dollars}} = \frac{40}{8} = \frac{x}{20}$$

$$\frac{40}{8} = \frac{\cancel{8x}}{\cancel{8}}$$

$$5 = x$$

Display Master: Bags of Candy F

$$\frac{\text{Bags}}{\text{Dollars}} = \frac{2}{8} = \frac{5}{20}$$

Display Master: Gallons of Gas A

Charlie can buy 3 gallons of gas for \$6. Charlie has \$11.
How many gallons of gas can he put in his car?

$$\frac{\text{Gallons}}{\text{Dollars}} = \frac{3}{6} = \frac{x}{11}$$

Display Master: Gallons of Gas B

Gallons
Dollars

$$\frac{3}{6} = \frac{x}{11}$$

$6x$

$$6 \bullet x = 6x$$

Display Master: Gallons of Gas C

$$\frac{\text{Gallons}}{\text{Dollars}} = \frac{3}{6} = \frac{x}{11}$$

$33 \qquad 6x$

$$6 \cdot x = 6x$$

$$11 \cdot 3 = 33$$

Display Master: Gallons of Gas D

$$\frac{\text{Gallons}}{\text{Dollars}} = \frac{3}{6} = \frac{x}{11}$$

$33 \qquad 6x$

$$33 = 6x$$

Display Master: Gallons of Gas E

$$\frac{\text{Gallons}}{\text{Dollars}} = \frac{3}{6} = \frac{x}{11}$$

$6x$

$$\frac{33}{6} = \frac{6x}{6}$$

$$5.5 = x$$

Display Master: Gallons of Gas F

$$\frac{\text{Gallons}}{\text{Dollars}} = \frac{3}{6} = \frac{5.5}{11}$$