Solving Proportions (6-3)

cross products	Decode cr• oss pro•ducts
Definition	Example $\frac{2 \cdot 6}{3 \cdot 6} \times \frac{x}{18}$ $x = 12$ $2 \cdot 18 = 3x$ $\frac{36}{3} = \frac{3x}{3}$ $12 = x$

Example 1: Decide if the ratios form a proportion.

I Do	You Do
$\frac{5}{17} \times \frac{60}{221}$ $5 \cdot 221 = 17 \cdot 60$ $1{,}105 \neq 1{,}020$ NO	$\frac{6}{11} \times \frac{84}{154}$ $6 \cdot 154 = 11 \cdot 84$ $924 = 924$ ✓ yes

Example 2: Solve each proportion.

I Do	You Do
$\frac{27}{15} = \frac{72}{y}$ $15 \cdot 72 = 27 \cdot y$ $\frac{1,080}{27} = \frac{27y}{27}$ $40 = y$	$\frac{v}{84} = \frac{2}{21}$ $84 \cdot 2 = 21 \cdot v$ $\frac{168}{21} = \frac{21v}{21}$ $8 = v$

Example 2: Emma makes $75 babysitting for 15 hours.

I Do	You Do
How much money would she make if she babysat for 22 hours? $\frac{\$75}{15 \text{ hrs.}} = \frac{\$x}{22 \text{ hrs.}}$ $75 \cdot 22 = 15x$ $\frac{1650}{15} = \frac{15x}{15}$ $\$110 = x$	How many hours must she babysit to earn $85? $\frac{\$75}{15 \text{ hrs.}} = \frac{\$85}{x \text{ hrs.}}$ $15 \cdot 85 = 75x$ $\frac{1,275}{75} = \frac{75x}{75}$ $17 \text{ hrs.} = x$