Lesson 4-2

cross products	Decode
Definition * = sign	Example $\frac{2}{3} \times \frac{4}{6}$ $2 \cdot 6 = 3 \cdot 4$ $12 = 12$ ✓

Example 1: Using Cross Products to Identify Proportions

Tell whether the ratios form a proportion.

I Do	You Do
$\frac{6}{7} \times \frac{18}{19}$ $6 \cdot 19 = 18 \cdot 7$ $114 \neq 126$ NO	$\frac{9}{13} \times \frac{63}{91}$ $9 \cdot 91 = 13 \cdot 63$ $819 = 819$ ✓ yes

IXL Lessons: 8th Grade → H.7, H.8, H.9, H.10

Lesson 4-2

Example 2: Using Proportions of Equality to Solve Proportions

I Do	You Do
For most people, the ratio of head length to total height is 1:7. If a person is 56 inches tall, what should the length of the person's head be?	The ratio of boys to girls in a soccer league is 4:5. If there are 52 boys in the league, how many girls are there?

head / height

$\frac{1 \cdot 8}{7 \cdot 8} = \frac{x}{56}$ (8 m.)

B / G

$\frac{4}{5} \times \frac{52}{x}$ (5·52)

$\frac{4x}{4} = \frac{260}{4}$

$x = 65$ girls

Example 3: Using Cross Products to Solve Proportions

I Do	You Do
Colin has 225 envelopes to prepare for mailing. He takes 30 minutes to prepare 45 envelopes. If he continues at the same rate, how many more minutes until he has completed the job?	A banana slug travels 4.5 inches in 120 minutes. At this rate of speed, how long would it take the slug to travel 12 inches?

$\frac{45 \text{ en.}}{30 \text{ min.}} \times \frac{225 \text{ en.}}{x}$ (30·225)

$\frac{45x}{45} = \frac{6750}{45}$

$x = 150$ mins.

$\frac{(x+2)}{6} \times \frac{10}{12}$

$6 \cdot 10 = 12(x+2)$ (12·2)

$60 = 12x + 24$ (−24, −24)

$\frac{36}{12} = \frac{12x}{12}$

$3 = x$

IXL Lessons: 8th Grade → H.7, H.8, H.9, H.10

(8)

$$\frac{8}{(b+10)} = \frac{4}{(2b-7)}$$

$$4(b+10) = 8(2b-7)$$

$$4b + 40 = 16b - 56$$

$$-4b \quad\quad -4b$$

$$40 = 12b - 56$$

$$+56 \quad\quad +56$$

$$\frac{96}{12} = \frac{12b}{12}$$

$$\boxed{8 = b}$$