

9-5

Dilations

dilation: may change the size  
of a figure

$$XA' = 2XA$$

$$XB' = 2XB$$

$$XC' = 2XC$$

$r$ : scale factor

$r > 1$  enlargement

$r < 1$  reduction (fraction)

$r = 1$  congruent

$$\text{new} = |SF| \cdot \text{old}$$

$$A'B' = 2 \cdot 12$$

$$A'B' = 24$$

$$\text{new} = |\text{SF}| \cdot \text{old}$$

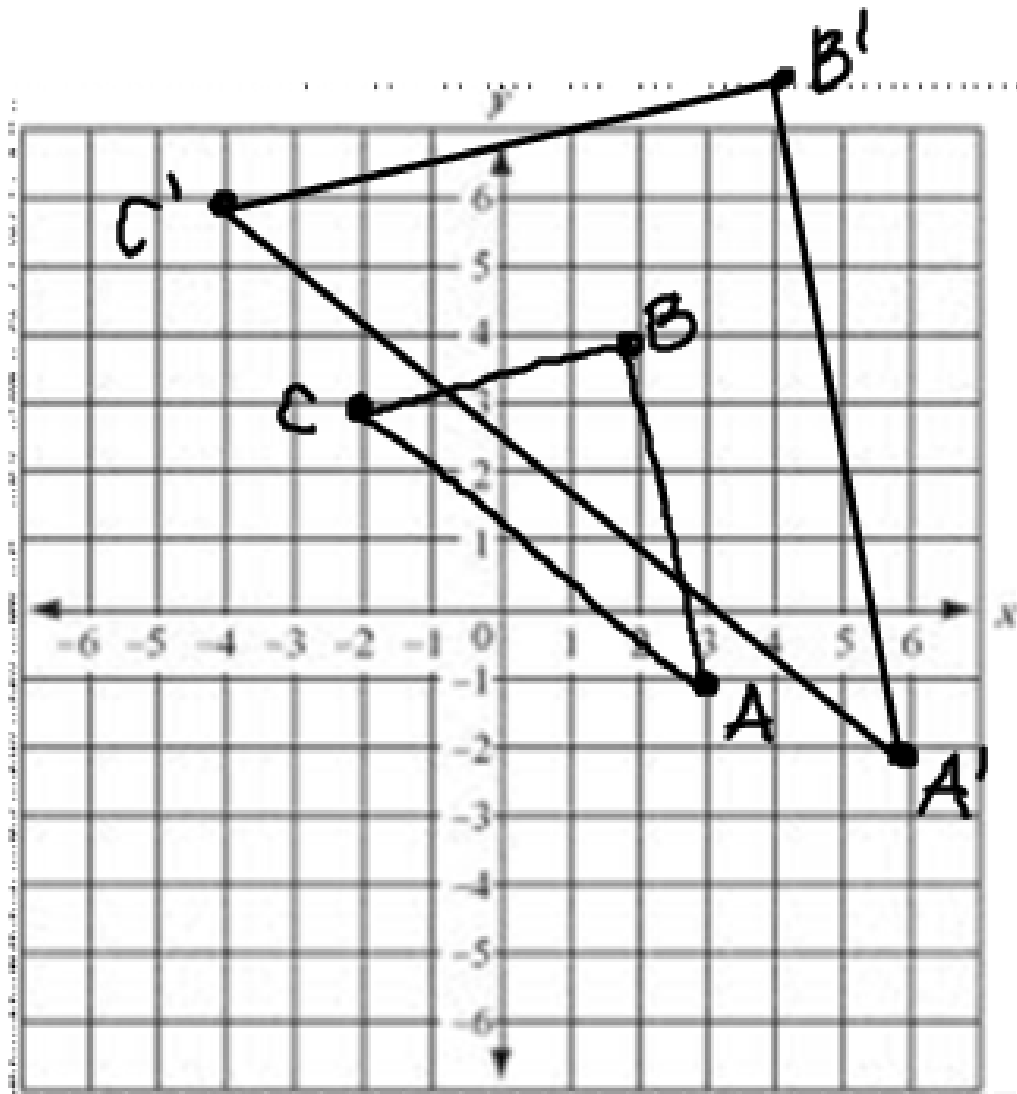
$$4 \cdot 36 = \frac{1}{4} \cdot AB \cdot 4$$

$$\boxed{144 = AB}$$

$$A'(6, -2)$$

$$B'(4, 8)$$

$$C'(-4, 6)$$



$$\frac{\text{new}}{\text{old}} = \frac{\text{SF} \cdot \cancel{\text{old}}}{\cancel{\text{old}}}$$

$$\frac{\text{new}}{\text{old}} = \text{SF}$$

$$\frac{P'Q'}{PQ} = \text{SF}$$

enlargement

$$\text{SF} = \frac{6}{3} = \textcircled{2}$$



$$SF = \frac{\text{new}}{\text{old}}$$

$$SF = \frac{M'N'}{MN} = \frac{4}{6} = \left(\frac{2}{3}\right)$$

reduction