

Chapter 2 Study Guide

Please sign to acknowledge SG is complete + answers checked online.

Covers:

Sections 2.1-2.7

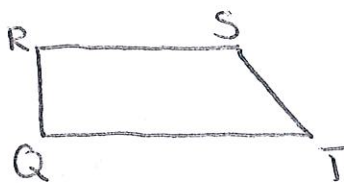
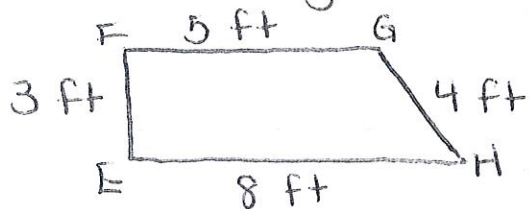
X _____

What does it mean when two figures are congruent?

Same size + shape

Corresponding sides + angles are congruent

The two figures below are congruent.



Name the corresponding sides:

$EF + RQ$

$FG + RS$ $EH + QT$

$GH + ST$

Name the corresponding angles:

$\angle E + \angle Q$

$\angle F + \angle R$

$\angle G + \angle S$

$\angle H + \angle T$

Ch. 2 Transformations

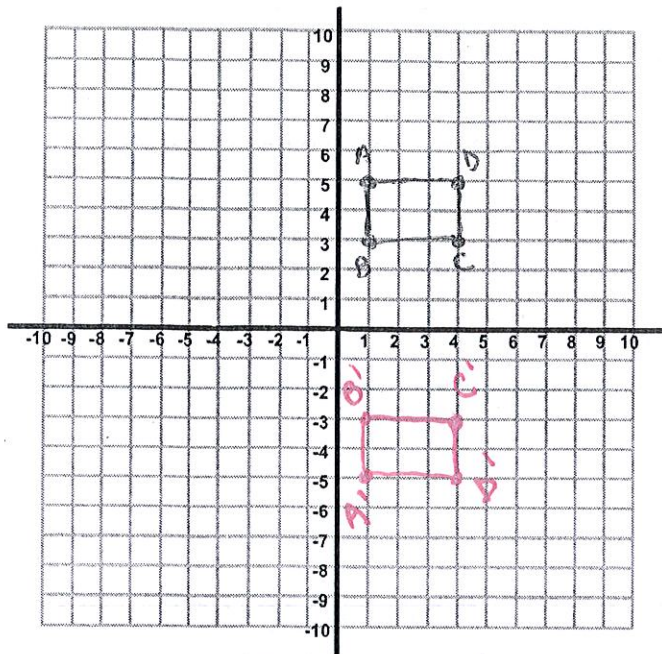
Translations	Move Right	add to x coordinate
	Move Left	subtract from x coordinate
	Move Up	add to y coordinate
	Move Down	subtract from y coordinate
Reflections	In x-axis	$(x, y) \rightarrow (x, -y)$
	In y-axis	$(x, y) \rightarrow (-x, y)$
Rotations	180°	$(x, y) \rightarrow (-x, -y)$
	90° Clockwise or 270° Counterclockwise	$(x, y) \rightarrow (y, -x)$
	90° Counterclockwise or 270° Clockwise	$(x, y) \rightarrow (-y, x)$
Dilations	Enlargement or Reduction	Scale factor $k > 0$ and $k < 1$ (reduction) $k > 1$ (enlargement)

Reflections:

What is a reflection?

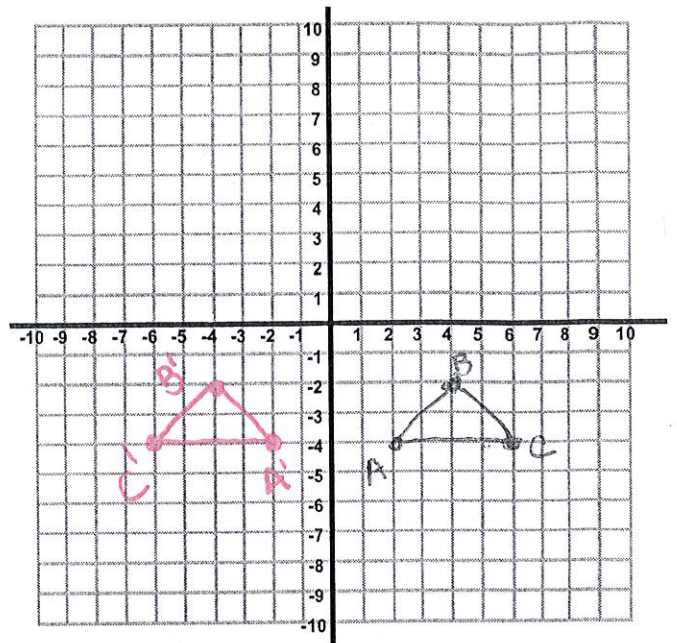
flip or mirror image

Reflect over x-axis



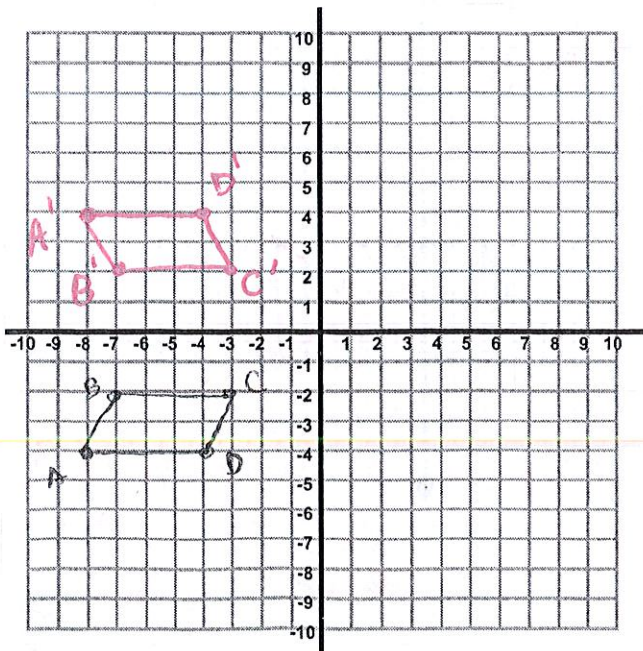
$A'(1, 5)$ $B'(1, 3)$ $C'(4, 3)$ $D'(4, 5)$
 $(1, -5)$ $(1, -3)$ $(4, -3)$ $(4, -5)$

Reflect over y-axis



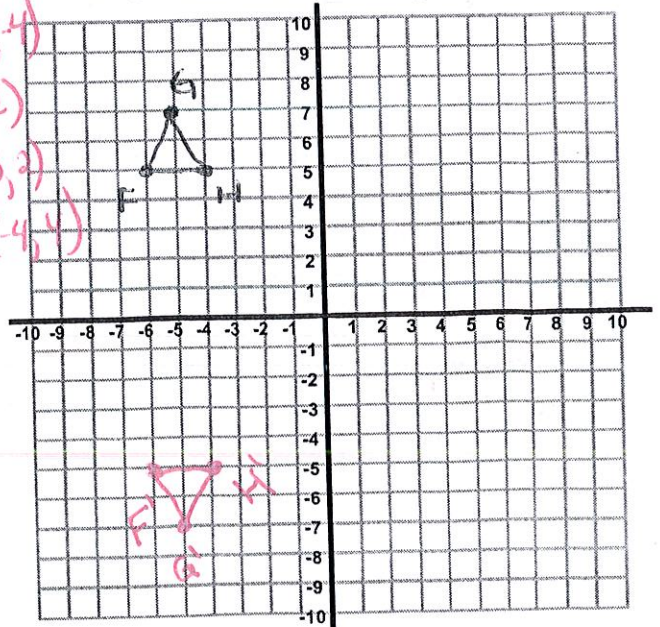
$A'(2, -4)$ $B'(4, -2)$ $C'(6, -4)$
 $(-2, -4)$ $(-4, -2)$ $(-6, -4)$

Reflect over x-axis



$A'(-8, 4) \rightarrow (-8, 4)$
 $B'(-7, 2) \rightarrow (-7, 2)$
 $C'(-3, 2) \rightarrow (-3, 2)$
 $D'(-4, 4) \rightarrow (-4, 4)$

Reflect over y-axis



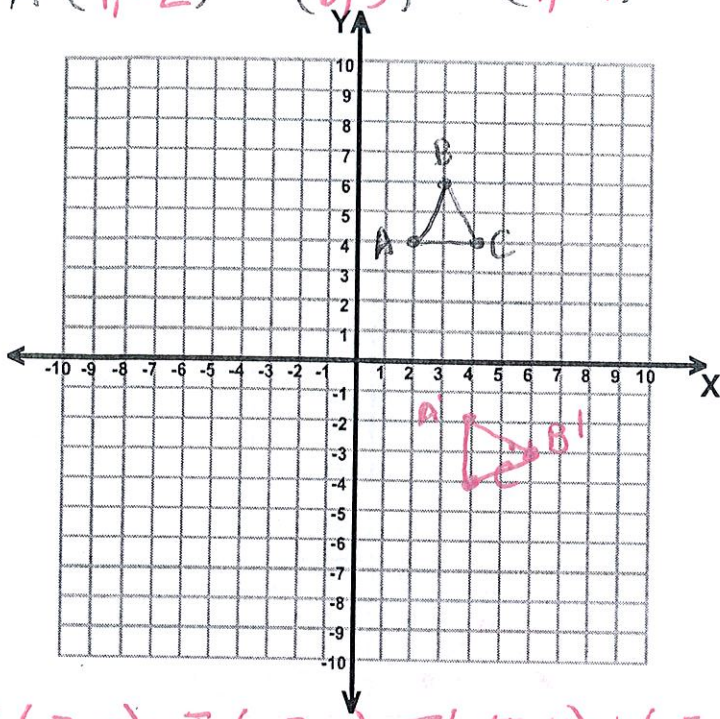
$F'(-6, 5)$ $G'(-5, 7)$ $H'(-4, 5)$
 $(-6, -5)$ $(-5, -7)$ $(-4, -5)$

Please rotate the following images..

A (2,4) B(3,6) C(4,4)

90° clockwise

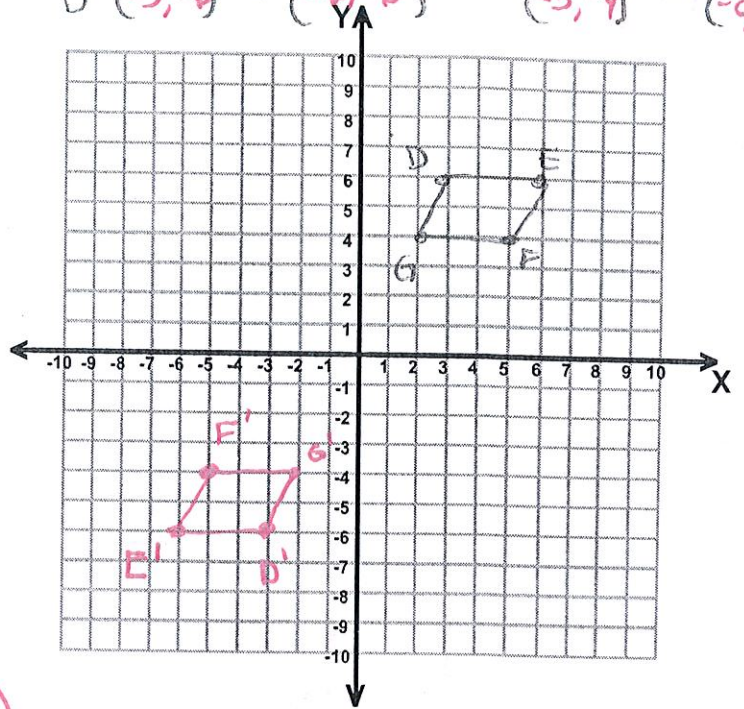
A'(4,-2) B'(6,3) C'(4,-4)



D(3,6) E(6,6) F(5,4) G(2,4)

180° clockwise

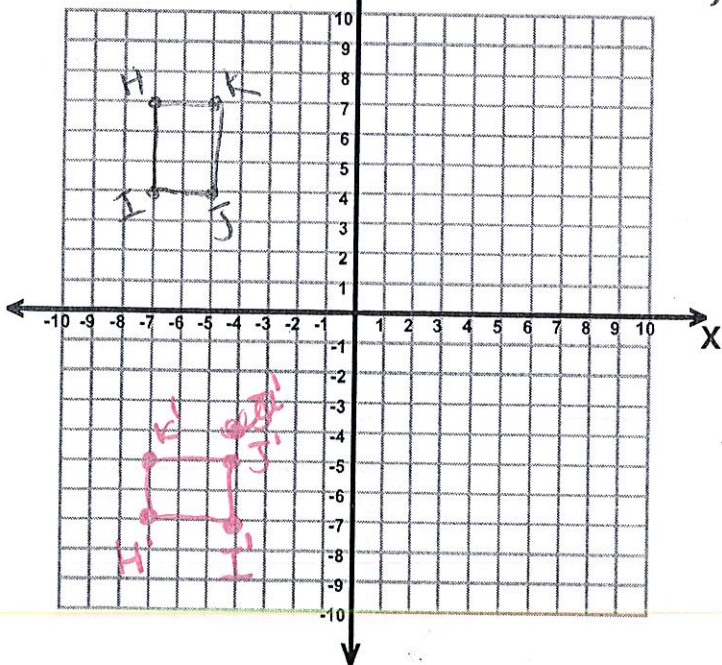
D'(-3,-6) E'(-6,-6) F'(-5,-4) G'(-2,-4)



H(-7,7) I(-7,4) J(-5,4) K(-5,7)

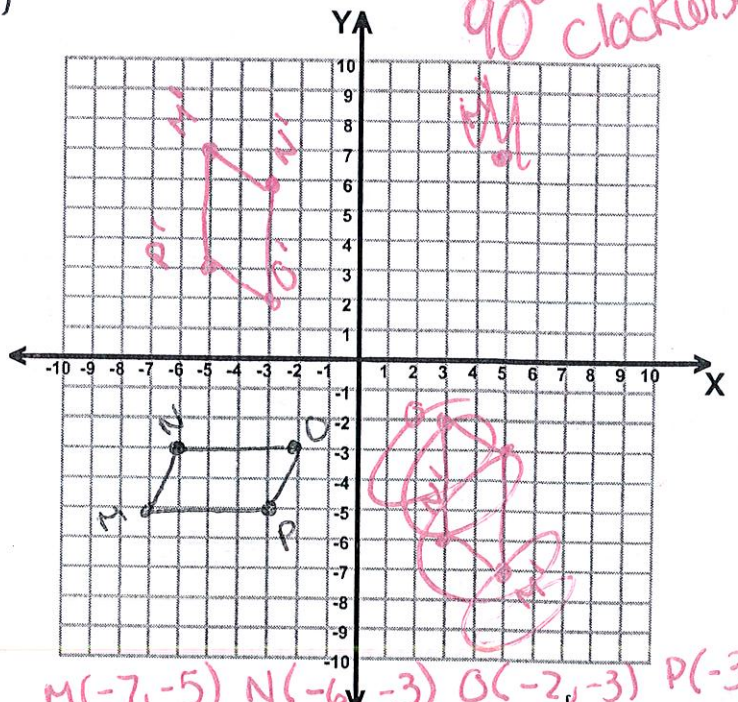
270° clockwise

H'(-7,-7) I'(-4,-7) J'(-4,-5) K'(-7,-5)



270° counterclockwise

90° clockwise



M(-7,-5) N(-6,-3) O(-2,-3) P(-3,-5)

M'(-5,7) N'(-3,6) O'(3,2)

P'(-5,3)

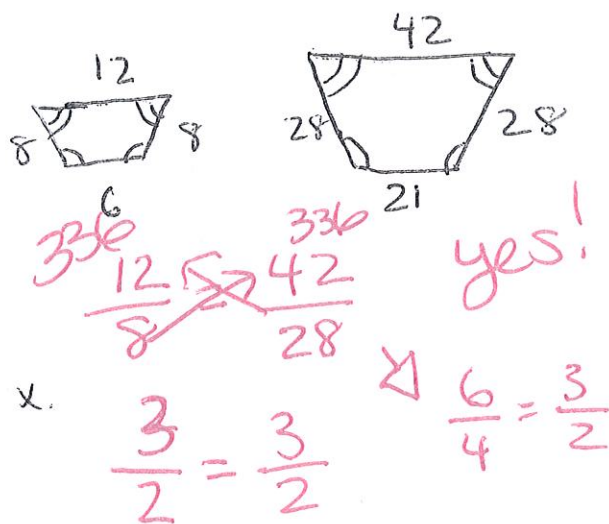
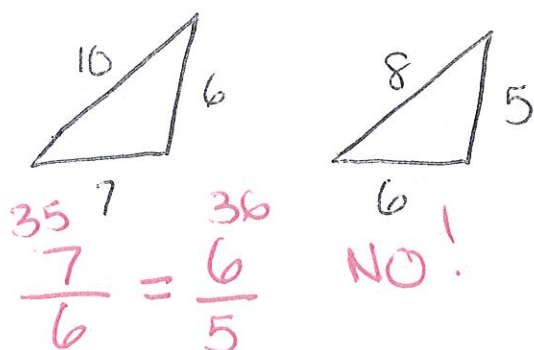
P'(-5,3)



Similar Figures have:

- (1) Corresponding side lengths that are proportional
- (2) Congruent corresponding angles

Are these figures similar?



These figures are similar. Find x.



$\frac{14}{7} = \frac{20}{x}$
 $14x = 140$
 $x = 10$

Perimeters + Areas of Similar Figures

Ratio of corresponding sides = Perimeter Ratio
 Area Ratio = $\left(\frac{\text{ratio of corr sides or perimeter ratio}}{1} \right)^2$

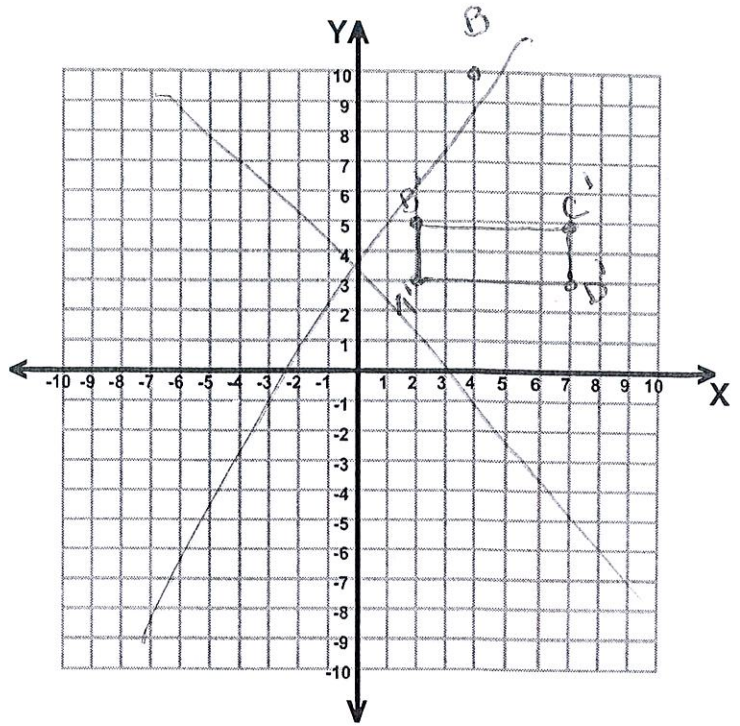
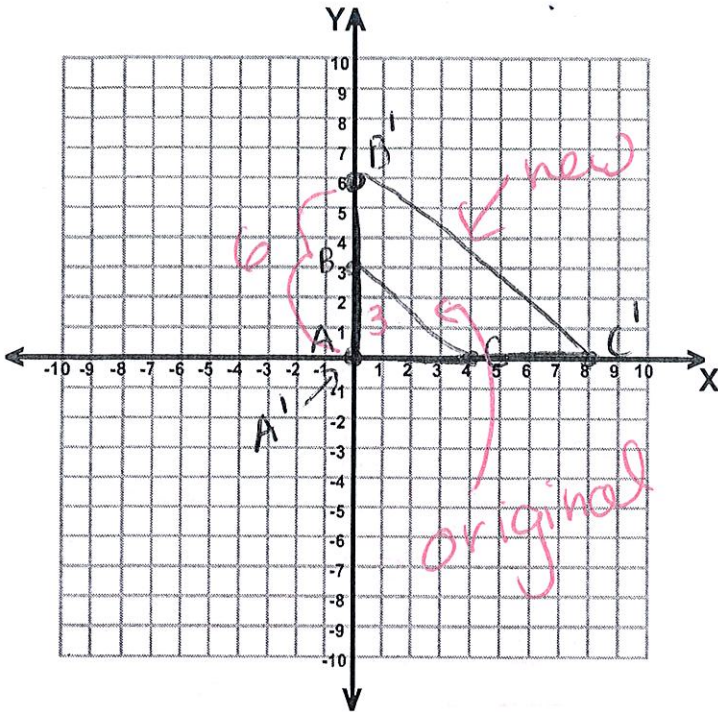
$\frac{14}{7} = \frac{2}{1} = \frac{2}{1}$

$\left(\frac{2}{1} \right)^2 = \frac{4}{1}$

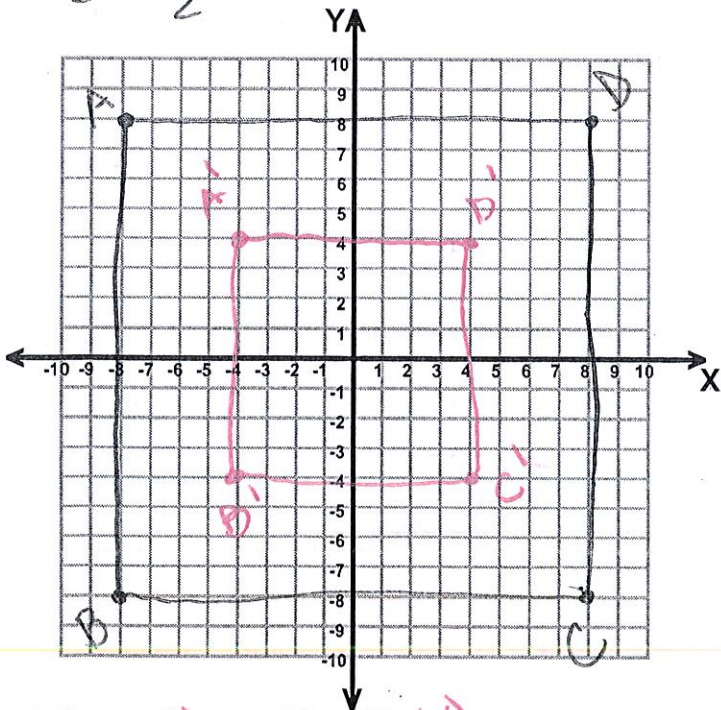
Find scale factor

$$\frac{\text{new}}{\text{original}} = \frac{6}{3} = 2$$

enlargement

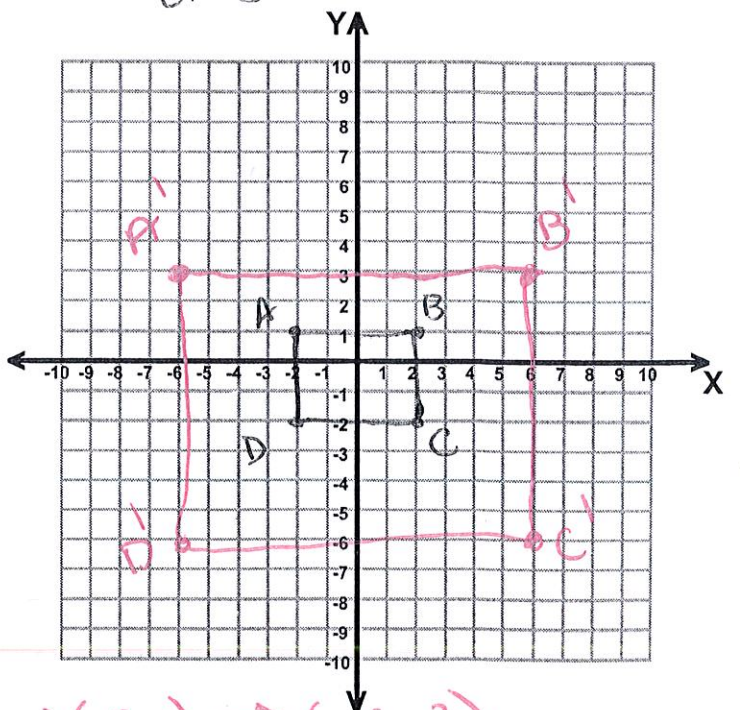


Dilate with a scale factor of $\frac{1}{2}$



$$\begin{aligned} A(-8,8) &\rightarrow (-4,4) \\ B(-8,-8) &\rightarrow (-4,-4) \\ C(8,-8) &\rightarrow (4,-4) \\ D(8,8) &\rightarrow (4,4) \end{aligned}$$

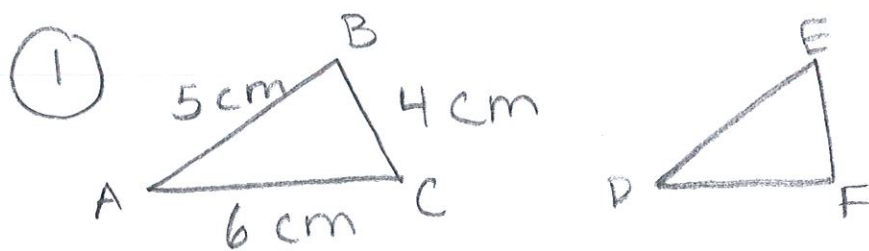
Dilate with a scale factor of 3



$$\begin{aligned} A(-2,1) &\rightarrow (-6,3) \\ B(2,1) &\rightarrow (6,3) \\ C(2,-2) &\rightarrow (6,-6) \\ D(-2,-2) &\rightarrow (-6,-6) \end{aligned}$$



Ch 2 Textbook Test (1-12, skip 13)



$\angle F$ corresponds with $\angle C$

② since the shapes are congruent, the perimeter of DEF equals the perimeter of ABC.

$$5 + 4 + 6 = 15\text{ cm}$$

③ dilation



all vertices lie on the same line

④ reflection

⑤ translation

⑥ rotation

⑦-⑧ graph paper

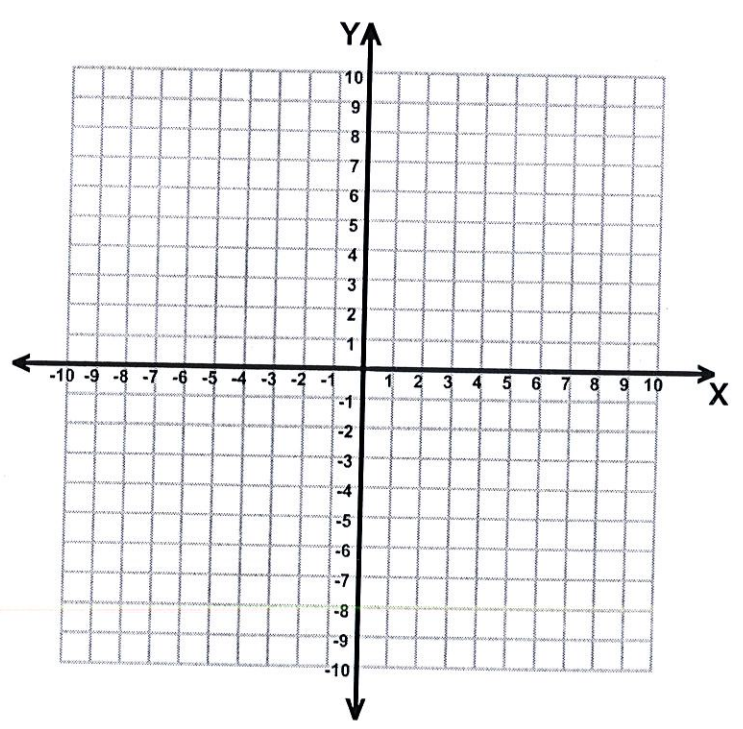
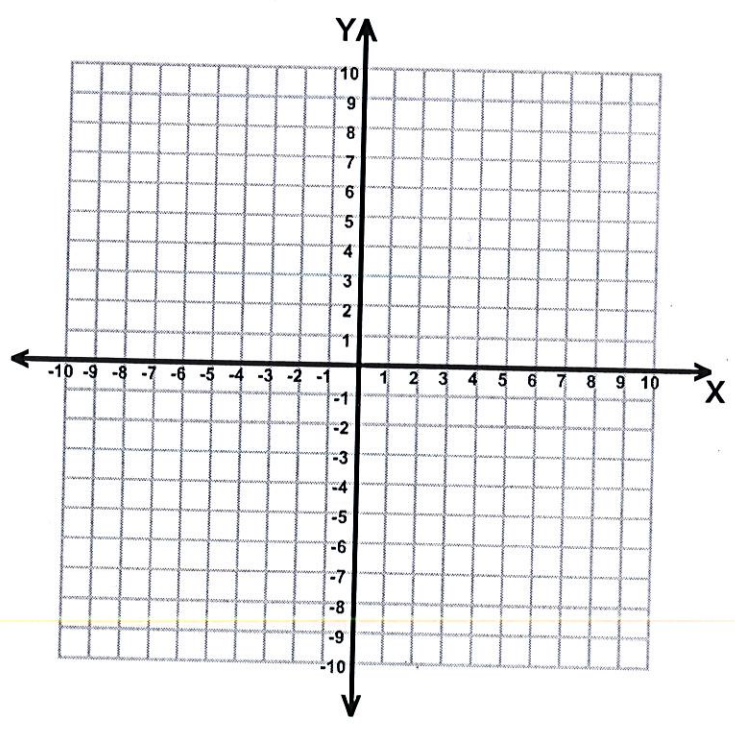
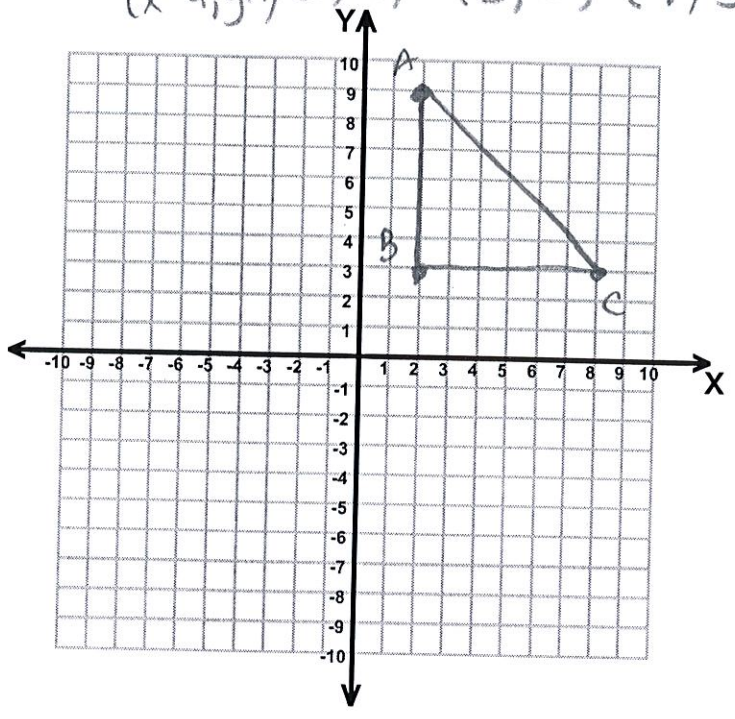
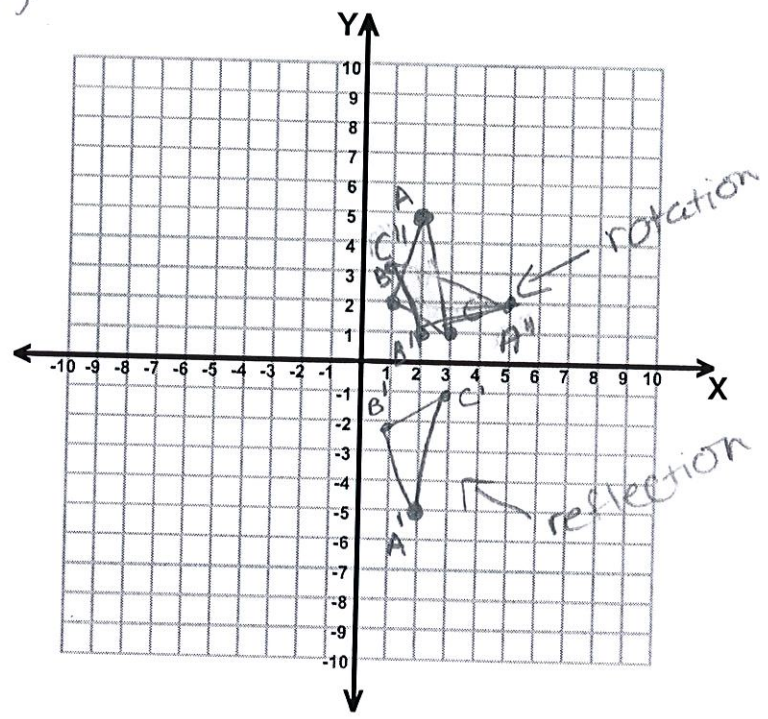


no, corresponding lengths are not proportional.

7) A(2, 5) B(1, 2) C(3, 1)
 Reflect (2, -5) (1, -2) (3, -1)
 X-axis
 $(x, y) \rightarrow (x, -y)$
 (5, 2) (2, 1) (1, 3)

90° ccw =
 270° cw

A(2, 4) B(2, 1) C(5, 1)
 $\times 2 \times 2$ $\times 2 \times 2$ $\times 2 \times 2$
 (4, 8) (4, 2) (10, 2)
 $(x-2, y+1)$ (2, 9) (2, 3) (8, 3)



10

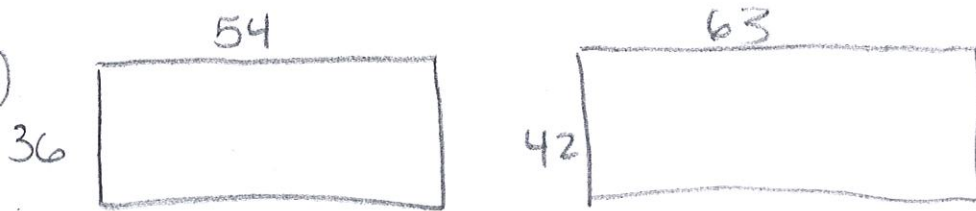


$$\frac{14}{8} = \frac{7}{4} \quad \text{Perimeter ratio} \quad \text{area ratio} \quad \left(\frac{7}{4}\right)^2 = \frac{49}{16}$$

11

$$\frac{9}{12} = \frac{3}{4} \quad \text{Perimeter ratio} \quad \text{area ratio} \quad \left(\frac{3}{4}\right)^2 = \frac{9}{16}$$

12



$$\frac{36}{54} = \frac{42}{63}$$

$$\frac{4}{6} = \frac{6}{9}$$

$$\frac{2}{3} = \frac{2}{3}$$

Yes, both reduce to same ratio. The corresponding lengths are proportional.