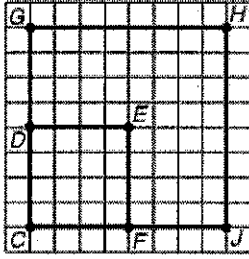
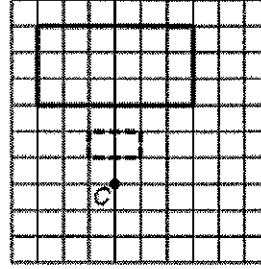


1. Determine whether the dilation shown is an enlargement, a reduction, or a congruence transformation. Then determine the scale factor. $CGHJ$ is a dilation image of $CDEF$.



Type of dilation: Enlargement
Scale factor: 2

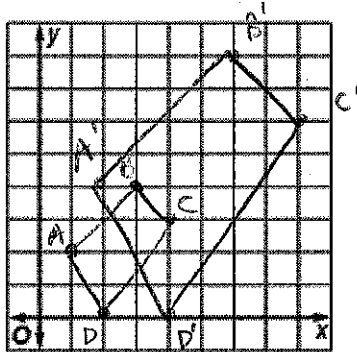
2. Determine whether the dilation shown is an enlargement, a reduction, or a congruence transformation. Then determine the scale factor. The dashed figure is the dilation image.



Type of dilation: Reduction
Scale factor: 1/3

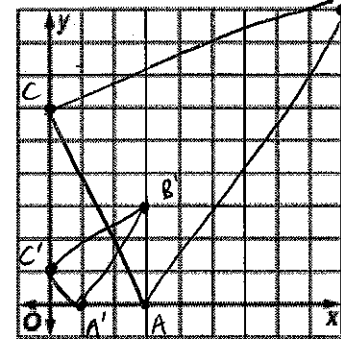
3. Graph the polygon that has the following vertices. Then find and graph the image of the polygon after a dilation centered at the origin with a scale factor of 2.

- $A(1, 2) \rightarrow A'(2, 4)$
- $B(3, 4) \rightarrow B'(6, 8)$
- $C(4, 3) \rightarrow C'(8, 6)$
- $D(2, 0) \rightarrow D'(4, 0)$



4. Graph the polygon that has the following vertices. Then find and graph the image of the polygon after a dilation centered at the origin with a scale factor of $\frac{1}{3}$.

- $A(3, 0) \rightarrow A'(1, 0)$
- $B(9, 9) \rightarrow B'(3, 3)$
- $C(0, 6) \rightarrow C'(0, 2)$



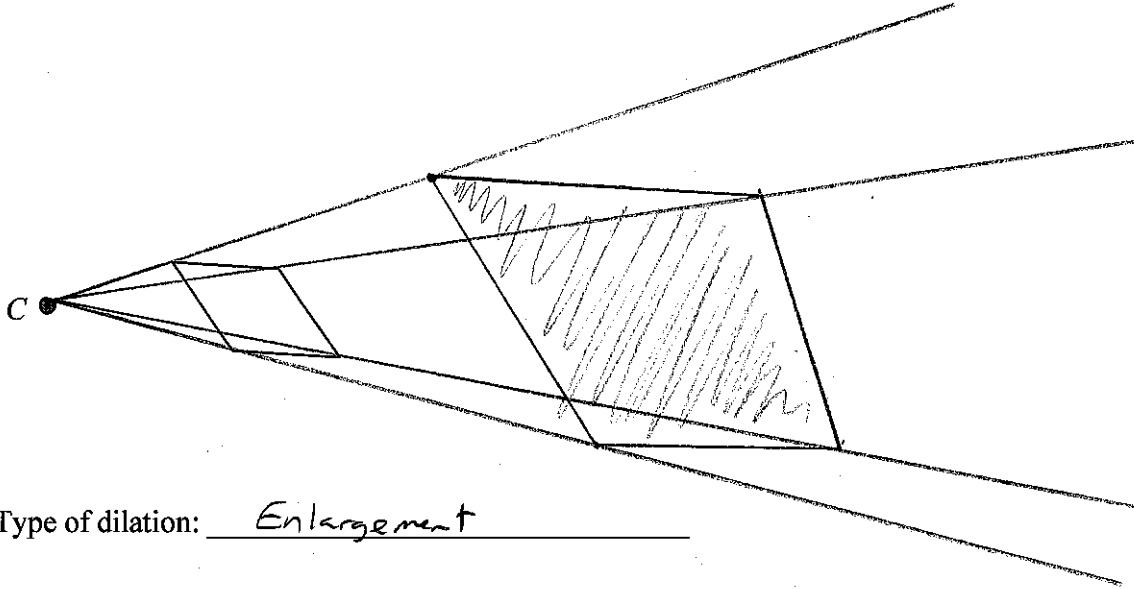
5. Find the length of $\overline{A'B'}$ under a dilation with a scale factor of 5 if $AB = 7.6$.

$$AB' = 38$$

6. Find the length of \overline{CD} under a dilation with a scale factor of $\frac{2}{5}$ if $C'D' = 8$.

$$CD = 20$$

7. Draw the image of the figure below under a dilation with center C and a scale factor of 3. Then determine whether the transformation is an enlargement, a reduction, or a congruence transformation.

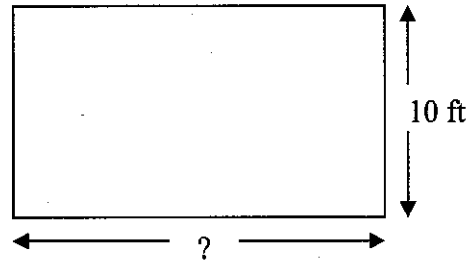
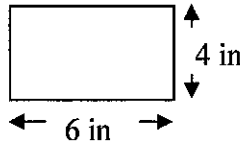


Type of dilation: Enlargement

8. A photograph with dimensions 4 in x 6 in is enlarged for a billboard. Both are shown at the right.

- a. What is the scale factor used to create the billboard?

$$r = 2.5$$



- b. What is the width of the billboard?

15 ft.

Solve each of the following proportions. Show all organized work.

1. $\frac{5}{8} = \frac{x}{12}$ $x = 7.5$

2. $\frac{x+2}{3} = \frac{8}{9}$ $x = \frac{2}{3}$

3. $\frac{x+1}{3} = \frac{7}{2}$ $x = 9.5$

4. $\frac{x-2}{4} = \frac{x+4}{2}$ $x = -10$

For #5-10:

- Write a proportion.
- Solve the proportion. Show all organized work.
- State the final answer.

5. Edward Hopper's oil on canvas painting *Nighthawks* has a length of 60 inches and a width of 30 inches. A print of the original has a length of 2.5 inches. What is the width of the print?

$$\frac{60}{2.5} = \frac{30}{x} \quad 1.25 \text{ in.}$$

6. The ratio of goats to sheep at a university research farm is 4:7. The number of sheep at the farm is 28. What is the number of goats?

$$\frac{4}{7} = \frac{x}{28} \quad 16 \text{ goats}$$

7. The ratio of male students to female students in the drama club at Campbell High School is 3:4. If the number of male students in the club is 18, what is the number of female students?

$$\frac{3}{4} = \frac{18}{x} \quad 24 \text{ female students}$$

8. The perimeter of a rectangle is 234 inches. The ratio of the length to the width is 8:5. Find the dimensions of the rectangle.

$$72 \text{ in.} \times 45 \text{ in.}$$

9. The ratio of the measures of the sides of a triangle is 3:4:6, and its perimeter is 104 feet. Find the measures of all the sides of the triangle.

$$24 \text{ ft, } 32 \text{ ft, } 48 \text{ ft.}$$

10. The ratio of the measures of the angles of a triangle is 4:5:6. Find the measures of all the angles of the triangle.

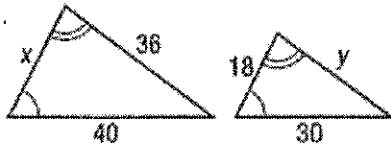
$$48^\circ, 60^\circ, 72^\circ$$

Geometry B
7.3 Similar Polygons

Name _____
 Hour _____ Date _____

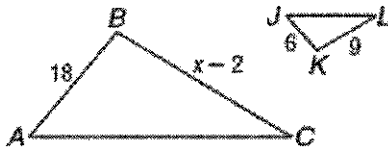
For #1-6, each pair of triangles is similar.

1. Find the values of x and y .



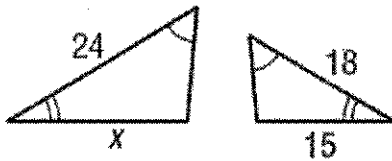
$x = \underline{24}$ $y = \underline{27}$

2. Find the value of x . $\triangle ABC \sim \triangle JKL$



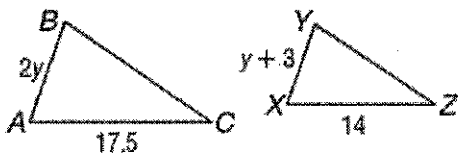
$x = \underline{29}$

3. Find the value of x .



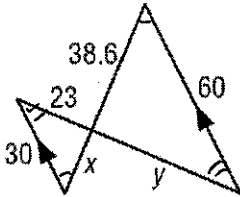
$x = \underline{20}$

4. Find the value of y .



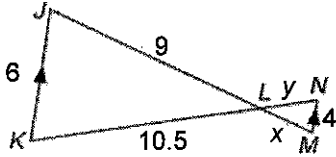
$y = \underline{5}$

5. Find the values of x and y .



$x = \underline{19.3}$ $y = \underline{46}$

6. Find the values of x and y .



$x = \underline{6}$ $y = \underline{7}$

7. The ratio of the angle measures in a triangle is 7:13:16. What are the measures of each angle?

$35^\circ, 65^\circ, 80^\circ$

8. The ratio of the length to the width of a rectangle is 14:11. The rectangle's perimeter is 650 mm. What are the rectangle's dimensions?

$182\text{ mm} \times 143\text{ mm}$

For questions #1-4,

- a. Tell if you can conclude that the two given triangles are similar (YES or NO)
b. If so, state the postulate you used and write a similarity statement. If not, explain.

1.

a. Similar? YES or NO
b. SAS ~

2.

a. Similar? YES or NO
b. SSS ~

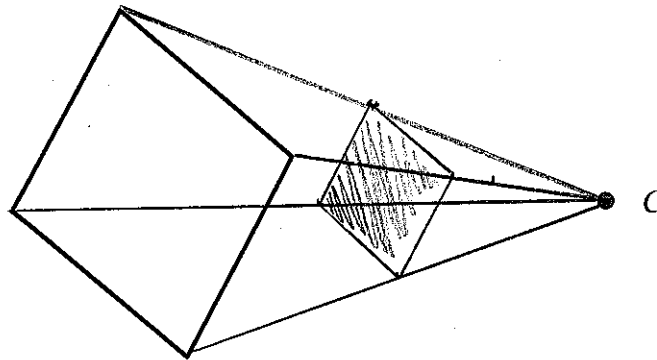
3.

a. Similar? YES or NO
b. _____

4.

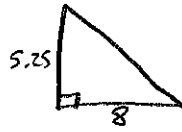
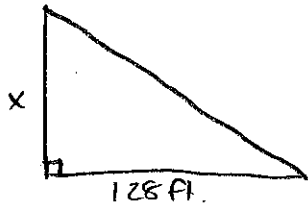
a. Similar? YES or NO
b. AAA ~

5. Draw the image of the figure below under a dilation with center C and a scale factor of $\frac{1}{2}$. Then determine whether the transformation is an enlargement, a reduction, or a congruence transformation.



Type of dilation: Reduction

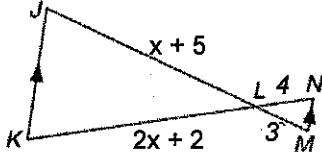
6. A lighthouse casts a 128-foot shadow. A nearby lamppost that measures 5.25 feet casts an 8-foot shadow. **Make a sketch of the situation.** Write a proportion that could be used to determine the height of the lighthouse. Then solve the proportion.



$$\frac{8}{128} = \frac{5.25}{x}$$

$$\boxed{84 \text{ ft.}}$$

7. Find the value of x .

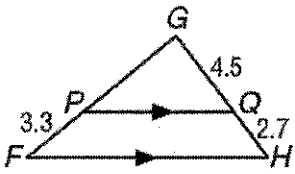


$$x = \underline{7}$$

8. Find the length of \overline{MN} under a dilation with a scale factor of $\frac{2}{3}$ if $M'N' = 12$.

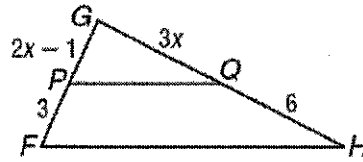
$$MN = 18$$

1. Find GP .



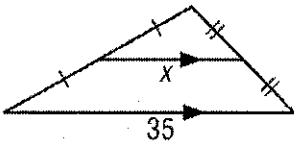
5.5

2. Find the value of x if $PQ \parallel FH$.



$x = 2$

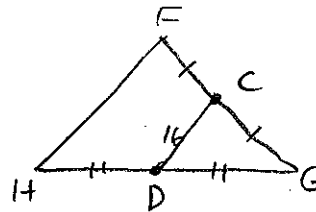
3. Find the value of x .



$x = 17.5$

4. In $\triangle FGH$, C is the midpoint of \overline{GF} and D is the midpoint of \overline{GH} .

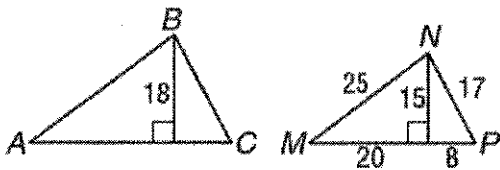
a. Draw and label $\triangle FGH$.



b. If $CD = 16$, find FH .

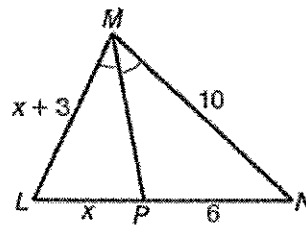
32

5. $\triangle ABC \sim \triangle MNP$. Find AB , BC , and AC .



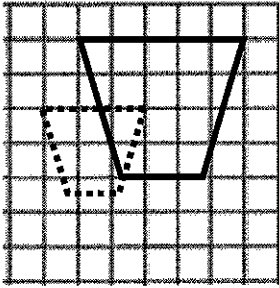
$AB = 30$ $BC = 20.4$ $AC = 33.6$

6. Find the value of x , LM , and LN .



$x = 4.5$ $LM = 7.5$ $LN = 10.5$

7. Determine whether the dilation shown is an enlargement, a reduction, or a congruence transformation. Then determine the scale factor. The dashed figure is the dilation image.



Type of dilation: Reduction

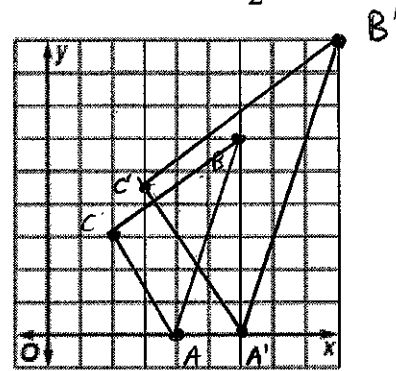
Scale factor: $\frac{1}{2}$

8. Graph the triangle that has the following vertices. Then find and graph the image of the triangle after a dilation centered at the origin with a scale factor of $\frac{3}{2}$.

$$A(4, 0) \rightarrow A'(6, 0)$$

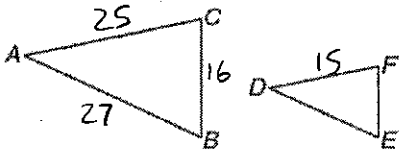
$$B(6, 6) \rightarrow B'(9, 9)$$

$$C(2, 3) \rightarrow C'(3, 4.5)$$



Type of dilation: Enlargement

9. $\triangle ABC \sim \triangle DEF$, $AB = 27$, $BC = 16$, $CA = 25$, and $FD = 15$. Find the perimeter of $\triangle DEF$.



40.8

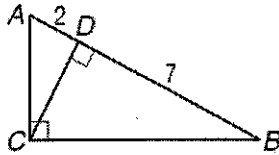
10. A postage stamp 25 millimeters wide and 40 millimeters tall is enlarged to make a poster. The poster is 4 feet wide. Find the height of the poster.

$$\frac{25}{40} = \frac{4}{x}$$

6.4 ft.

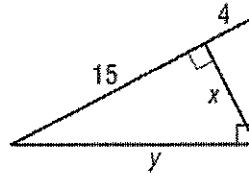
For all problems, round your answers to 2 decimal places.

1. Find the length of \overline{CD} .



$$\sqrt{14}$$

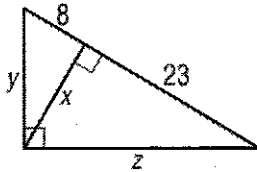
2. Find the values of x and y .



$$x = \sqrt{60} = 2\sqrt{15}$$

$$y = \sqrt{285}$$

3. Find the values of x , y and z .

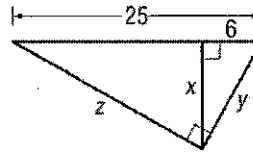


$$x = \sqrt{184} = 2\sqrt{46}$$

$$y = \sqrt{248} = 2\sqrt{62}$$

$$z = \sqrt{715}$$

4. Find the values of x , y and z .

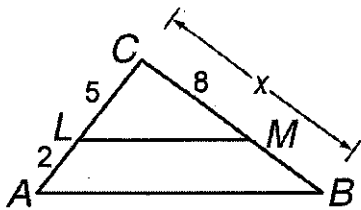


$$x = \sqrt{114}$$

$$y = \sqrt{150} = 5\sqrt{6}$$

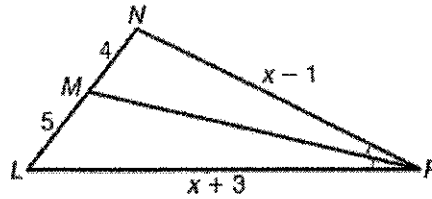
$$z = \sqrt{475} = 5\sqrt{19}$$

5. Find x so that $\overline{LM} \parallel \overline{AB}$.



$$x = 11.2$$

6. Find x .



$$x = 17$$

7. A car has a length of 8 feet and a width of 4.8 feet. If the width of a model of the car is 6 inches, what is the length of the model?

$$10 \text{ in.}$$

8. Find the length of $M'N'$ under a dilation with a scale factor of $\frac{2}{3}$ if $\overline{MN} = 12$.

$$M'N' = 8$$

9. If $\triangle ABC \sim \triangle SPK$, which proportion must be true? Sketch and label a picture to help you determine the correct answer.

~~A.~~ $\frac{AB}{SP} = \frac{BC}{SK}$

~~B.~~ $\frac{AB}{BC} = \frac{PK}{SP}$

~~C.~~ $\frac{AC}{SK} = \frac{BC}{SK}$

D. $\frac{AB}{BC} = \frac{SP}{PK}$

