Geometry   Mathematician: _____
Unit 3: Similar Figures and Dilation   Period:_____
3.2 Dilations

LEVEL: EMERGING

Directions: Answer the following questions below.

| 1. Give two example of a real life situation that represents a dilation.	2. Give an example of how to properly write a proportion that represents a segment getting expanding.	3. With the dilation centered at the origin, what are the coordinates of the image if *Q(-9, 10)* has a linear scale factor of 4.5?
Example 1		
Example 2		

LEVEL: PROFICIENT

Directions: Calculate the linear scale factor for the dilation of the figures shown. Tell whether the dilation is a reduction or an enlargement
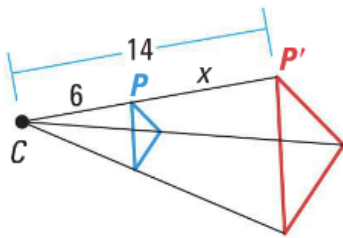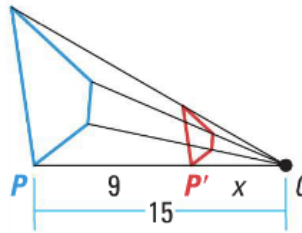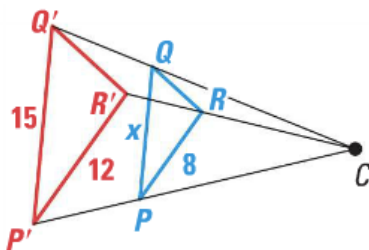
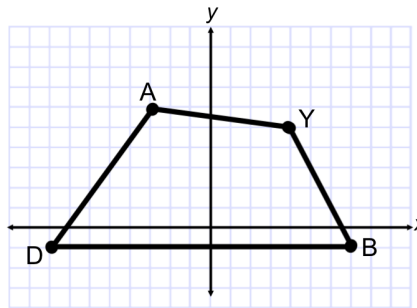| 4.	5.
Linear scale factor:	Linear scale factor:
Type:	Type:

6. Calculate the linear scale factor. Find the value of x that makes $\Delta Q'R'P' \sim \Delta QRP$. Then, describe the dilation.	7. Dilate the quadrilateral AYBD by a linear scale factor of 0.5 centered at the origin. Find the coordinates of the image of A', Y', B', D' to calculate the sum of all of the ordered pairs.
	A' Y' B' D'
	Sum:

Directions: For exercises 8-11: Triangle ABC is dilated to form triangle $A'B'C'$.

| 8.	9.	10.	11.
If $\frac{A'C'}{AC} = 3$, what is $\frac{A'B'}{AB}$?	If $\frac{A'C'}{AC} = 8.5$, what is $\frac{A'B'}{AB}$?	If $\frac{BC}{B'C'} = 9$, what is $\frac{A'C'}{AC}$?	If $\frac{BC}{B'C'} = 3$, what is $\frac{A'C'}{AC}$?

Directions: For exercises 12 and 13: Given the vertices of a triangle and the linear scale factor, find the vertices of the dilated image. Graph the image on the coordinate plane using proper notation. Finally, find the product or sum all of the y -coordinatesof the image. The center of dilation is the origin.
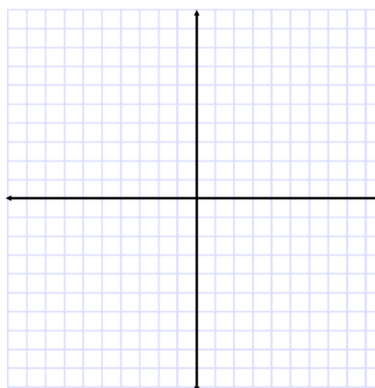
12.A(0, 3), B(2, -3), C(4, 4) with a linear scale factor of 2.
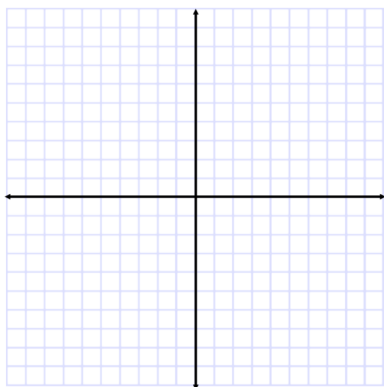
Coordinates of $\Delta A'B'C'$

Product:

13.A(-3, 6), B(9, 3), C(6, -3) with a linear scale factor of $\frac{1}{3}$.


Coordinates of $\Delta A'B'C'$

Sum:

14. Figure A is dilated by a scale factor of 7 to form figure B, which is then dilated by a scale factor of $\frac{5}{6}$. What is the scale factor that dilates figure A to figure C?

15.Thor wants to enlarge an old rectangular picture to make both the length and width 2 times as large as they were originally. If the area of the original picture is 24 in², what is the area of the enlargement?

16.Fancy Frank wanted a rectangular pig pen with dimensions 80 feet by 120 feet. Bob, the builder, constructed a pig pen with the dimensions 16 feet by 24 feet. By what factor should Bob have increased both the width and the length to give Fancy Frank what he asked for?

17. Dilate the figure below by a factor of 2. The center of dilation is the origin. How do the equations of the lines containing the sides of the triangle change?
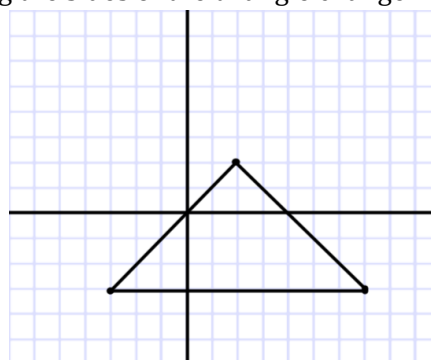
Unit 3.2 Worksheet Answers

1. Answers may vary (check with classmates or teacher for verification)
2. Answers may vary (check with classmates or teacher for verification)
3. Q' (-40.5, 45)
4. LSF = $\frac{7}{3}$; Enlargement
5. LSF = $\frac{2}{5}$; Reduction
6. LSF = $\frac{3}{2}$; x = 10; Enlargement
7. Sum = 9
8. 3
9. 8.5
10. $\frac{1}{9}$
11. $\frac{1}{3}$
12. Product = -288
13. Sum = 2
14. $\frac{35}{6}$
15. Answers may vary (check with classmates or teacher for verification)
16. 5
17. Answers may vary (check with classmates or teacher for verification)