10.6 Dilations

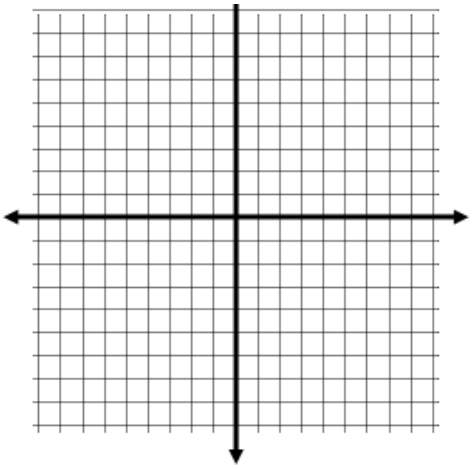
Name_____Hr_____

1. If a segment AB having length 2 in. is dilated with a scale factor of 3, what is the length of A'B'?

2. If an equilateral triangle ΔTRI whose side length is 4 m. is dilated with a scale factor of 1/2, what is the length of the sides of T'R'I'?

3. If a square SQRE that had side lengths of 5cm has been dilated to S'Q'R'E' with side lengths of 15cm, what was the scale factor of the dilation?

4. Plot the rectangle *ABCD* formed with the points *A*(−1, −2), *B*(3, −2), *C*(3, 1), and *D*(−1, 1) onto the graph. Use the method from the problem task to enlarge it from the origin by a factor of 3. Label this new rectangle *A'B'C'D'*.

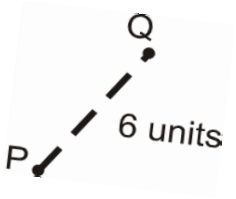


a. What are the dimensions of the rectangle, *ABCD*?

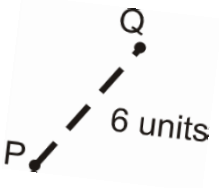
b. What are the dimensions of the enlarged rectangle, *A'B'C'D'*?

c. How does the length of *AB* compare to *A'B'*?

5. Given the segment below PQ draw the dilation PQ′ with the center of dilation *P* and the scale factor of 3.

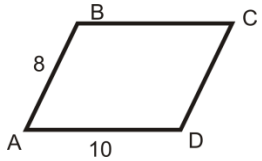


6. Now find the dilation PQ'' using the scale factor of $\frac{1}{3}$.

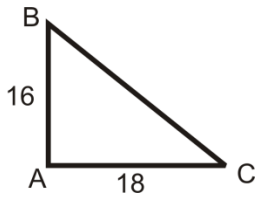


For the given shapes, draw the dilation, given the scale factor and center.

7. $k = 2$, center is A

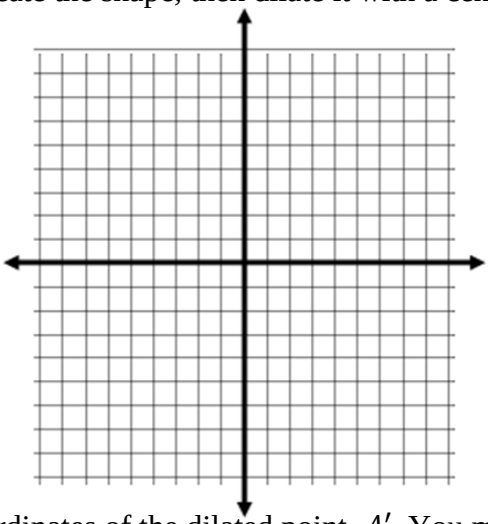


8. $k = \frac{3}{4}$, center is *A*



Plot the points, connect the points with lines to create the shape, then dilate it with a center of dilation located at (8, -8) and a scale factor of $k = \frac{1}{2}$.

9. A(-6, 0) B(4, 0) C(4, 8) D(-6, 8)



Given A and the scale factor k, determine the coordinates of the dilated point, A'. You may assume the center of dilation is the origin.

10. $A(3,9), k = \frac{2}{3}$

11. $A(-4,6), k = 2$

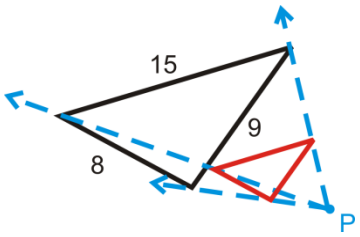
Given A and A', find the scale factor. You may assume the center of dilation is the origin.

12. $A(8,2), A'(12,3)$

13. $A(22,-7), A'(11,-3.5)$

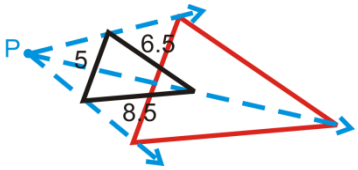
14. Use the scale factor and the lengths given on the preimage to determine the dimensions of the image or dilation. P is the center of dilation.

$k = \frac{1}{4}$



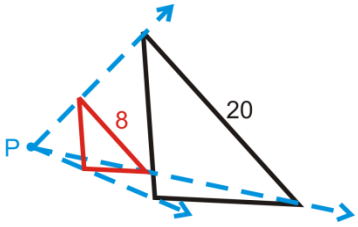
15. Use the scale factor and the lengths given on the Dilation to determine the dimensions of the preimage. P is the center of dilation.

$k = \frac{1}{3}$



In the two questions below, find the scale factor, given the corresponding sides. In each diagram, the larger figure is the original and P is the center of dilation.

16.



17.