

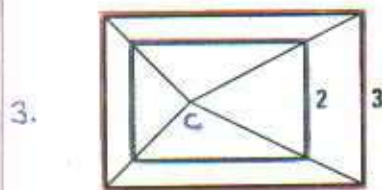
Geometry Ch 6-2 Exer., pg 370 #1, 3-5, 7-9, 13-16, 18-21, 22

1. Draw an example of a dilation.



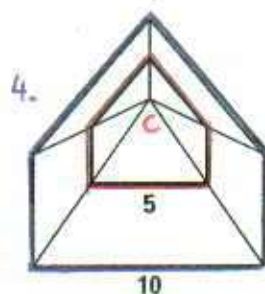
[Pre-image in Blue] [Dilation in Red]

Describe the dilation that moves the BLUE figure onto the RED figure



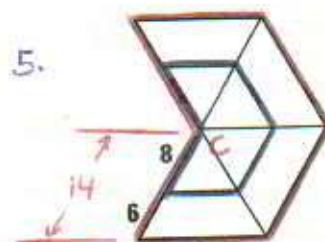
Dilation from C.

$$\frac{\text{Image}}{\text{Pre-Image}} = \frac{3}{2}$$



Dilation from C

$$\frac{\text{Image}}{\text{Pre-Image}} = \frac{1}{2}$$

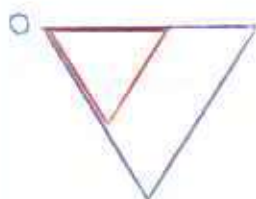


Dilation from C.

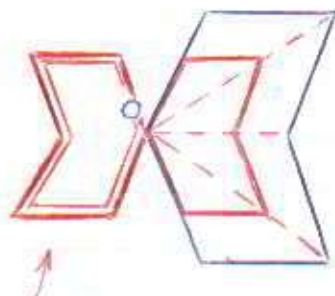
$$\frac{\text{Image}}{\text{Pre-Image}} = \frac{14}{8} = \frac{7}{4}$$

Copy the figure. Draw an example of the specified similarity transformation from the center at O. [Many/infinite answers!]

7. Dilation

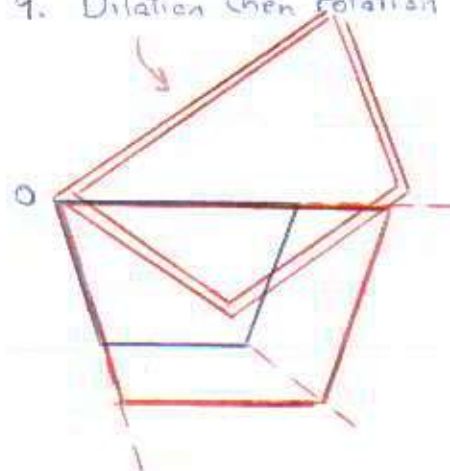


8. Dilation then reflection.



Dilation then Reflection

9. Dilation then rotation

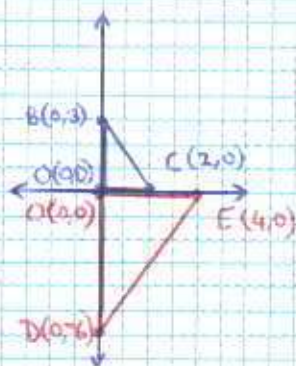


Pre-image coordinates given in BLUE.

Image (2<sup>nd</sup> figure) coordinates given in RED

Describe transformations that move 1<sup>st</sup> figure onto 2<sup>nd</sup> figure.

13.  $O(0,0)$ ,  $B(0,3)$ ,  $C(2,0)$   
 $O(0,0)$ ,  $D(0,-6)$ ,  $E(4,0)$

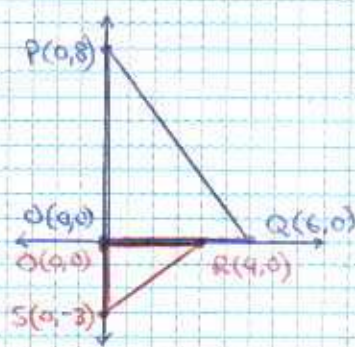


Dilation from  $O$ ,

$\frac{\text{Image}}{\text{Pre-image}} = \frac{2}{1}$ , then

reflection on x-axis

14.  $O(0,0)$ ,  $P(0,8)$ ,  $Q(6,0)$   
 $O(0,0)$ ,  $R(4,0)$ ,  $S(0,-3)$

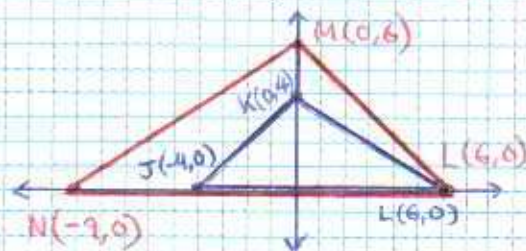


Dilation from  $O$ ,

$\frac{\text{Image}}{\text{Pre-image}} = \frac{1}{2}$ , then

$90^\circ$  clockwise rotation about  $O$ .

15.  $J(-4,0)$ ,  $K(0,4)$ ,  $L(6,0)$   
 $L(6,0)$ ,  $M(0,6)$ ,  $N(-9,0)$

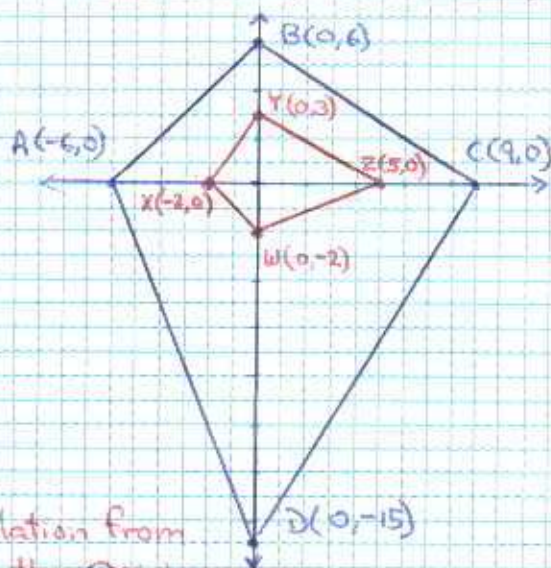


Dilation from the origin

$\frac{\text{Image}}{\text{Pre-image}} = \frac{6}{4} = \frac{3}{2}$ , then

reflection on y-axis.

16.  $A(-6,0)$ ,  $B(0,6)$ ,  $C(9,0)$ ,  $D(0,-15)$   
 $W(0,-2)$ ,  $X(-2,0)$ ,  $Y(0,3)$ ,  $Z(5,0)$



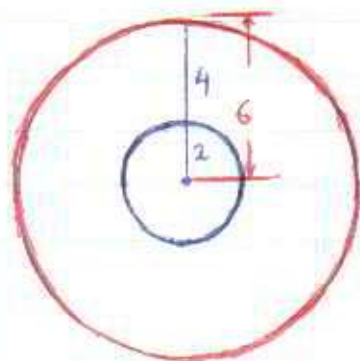
Dilation from  
the Origin

$\frac{\text{Image}}{\text{Pre-image}} = \frac{5}{15} = \frac{1}{3}$ , then

$90^\circ$  counter-clockwise rotation about origin

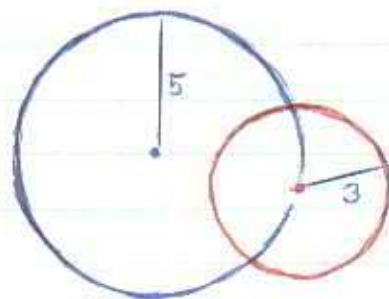
Find scale factor of the dilation that moves the BLUE circle to the RED circle.

18. Concentric circles.



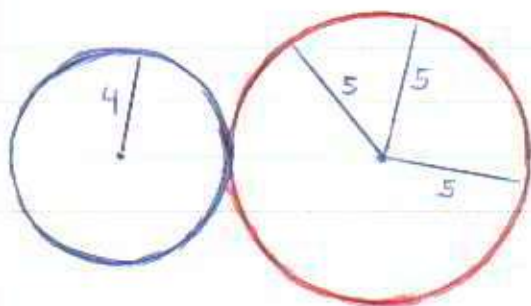
$$\frac{\text{Image}}{\text{Pre-image}} = \frac{6}{2} = \frac{3}{1}$$

19. Intersecting circles



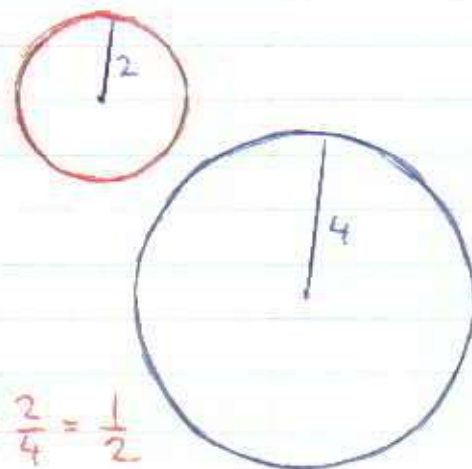
$$\frac{\text{Image}}{\text{Pre-image}} = \frac{3}{5}$$

20. Tangent circles.



$$\frac{\text{Image}}{\text{Pre-image}} = \frac{5}{4}$$

21. Non-intersecting circles.

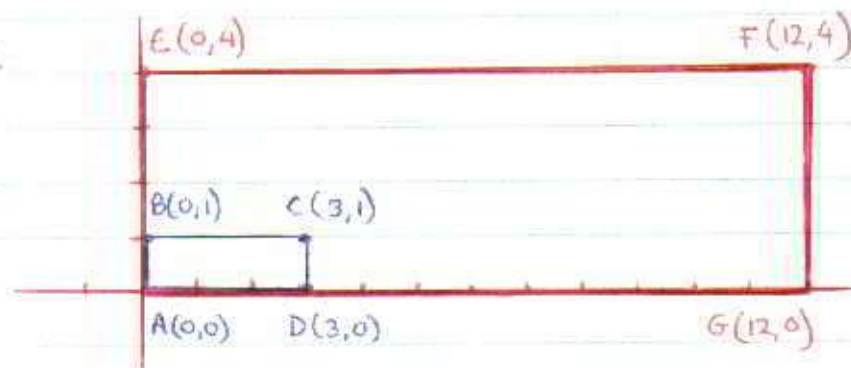


$$\frac{\text{Image}}{\text{Pre-image}} = \frac{2}{4} = \frac{1}{2}$$

22. The dilation of a rectangle has a scale factor of 4 to 1.

- Describe effect of dilation on rectangle's perimeter
- Describe effect of dilation on rectangle's area.

Graphical Solution:



$$\frac{\text{Image, AEFG}}{\text{Pre-image, ABCD}} = \frac{4}{1}$$

$$\frac{\text{Perim AEFG}}{\text{Perim ABCD}} = \frac{4 + 12 + 4 + 12}{1 + 3 + 1 + 3} = \frac{32}{8} = \frac{4}{1}$$

$$\frac{\text{Area AEFG}}{\text{Area ABCD}} = \frac{(4)(12)}{(1)(3)} = \frac{48}{3} = \frac{16}{1}$$