

1. Using the graph to the right, calculate the following. Dilate using a scale factor of $n=2$ and center at O .

a) Calculate the length OA . (reduced radical)

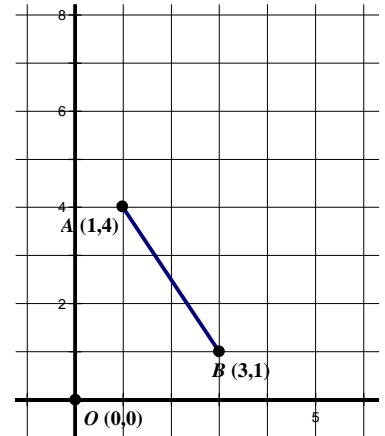
$O(0,0)$ $A(1,4)$

$$dist = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

b) Calculate the length OA' . (reduced radical)

$O(0,0)$ $A'(\underline{\quad}, \underline{\quad})$

$$dist = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$



c) What is the relationship between OA' and OA ?

d) Calculate the length OB . (reduced radical)

$O(0,0)$ $B(3,1)$

$$dist = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

e) Calculate the length OB' . (reduced radical)

$O(0,0)$ $B'(\underline{\quad}, \underline{\quad})$

$$dist = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

f) What is the relationship between OB' and OB ?

2. Circle whether the following situations are REDUCTIONS OR ENLARGEMENTS.

a) Scale Factor of 1:7
(pre-image : image)

Reduction or Enlargement

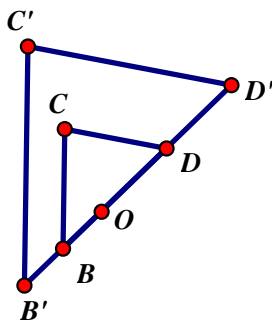
b) $D_{O,3}(H) = H'$

Reduction or Enlargement

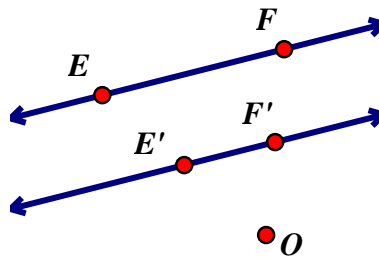


Reduction or Enlargement

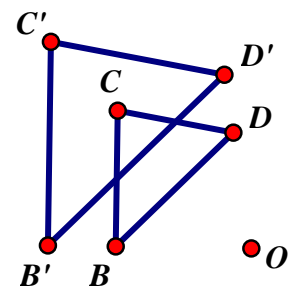
d) Reduction or Enlargement



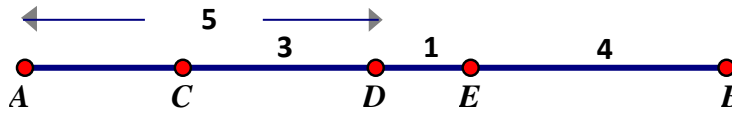
e) Reduction or Enlargement



f) Reduction or Enlargement



3. Determine the ratio. (Reduce the ratio)



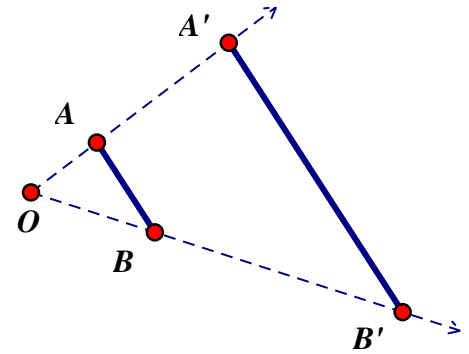
- a) $CD : DE$ _____ : _____ b) $EB : BD$ _____ : _____ c) $CD : DA$ _____ : _____
 d) $AC : CD$ _____ : _____ e) $CE : CD$ _____ : _____ f) $AC : AB$ _____ : _____

4. Answer the following questions about the dilation, centered at O.

a) Is this an enlargement or a reduction? _____
 Explain how you determined your answer.

b) What scale factor do you think this is? _____
 Explain how you determined your answer.

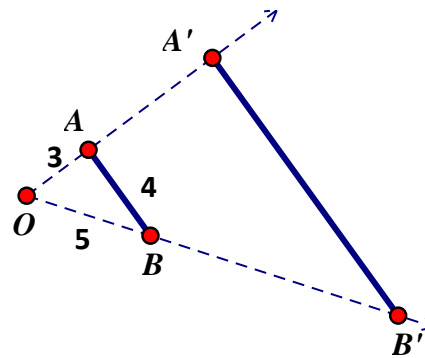
c) What angle is the same size as $\angle OBA$? _____
 Explain how you determined your answer.



6. Answer the following questions about the dilation centered at O with a scale factor of 3.

$OA = 3$, $OB = 5$ and $AB = 4$

- a) $A'B' =$ _____
 b) $OB' =$ _____
 c) $OA' =$ _____
 d) $AA' =$ _____ (be careful)
 e) $BB' =$ _____ (be careful)
 f) What is the ratio of $OA:AA'$? _____



7. Solve the following equations. Determine what the value of each variable is.

a) $x^2 + 6x = 16$

b) $2x + 7y = -5$
 $y = 3x - 4$