

PROBLEM SET 7-9R & 7-10L

Perform the following dilations with the indicated center of dilation and scale factor, compare the pre-image and image line relationships, and write an equation for the image line:

A. $D_{origin, \frac{1}{3}}(y = 3x - 6)$

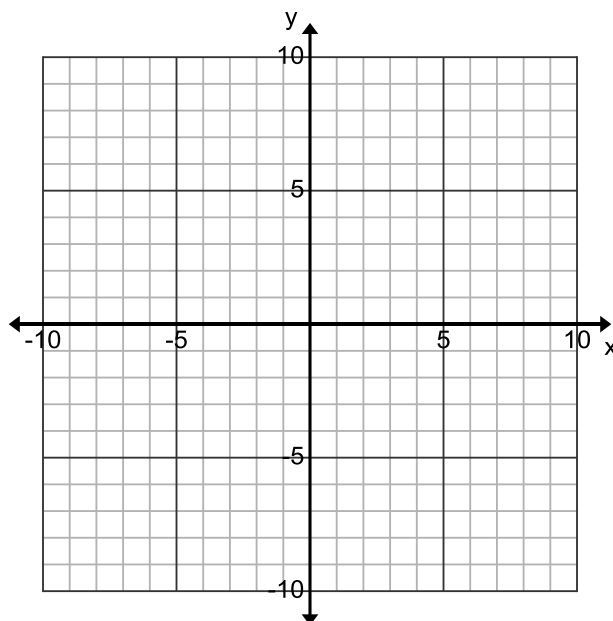
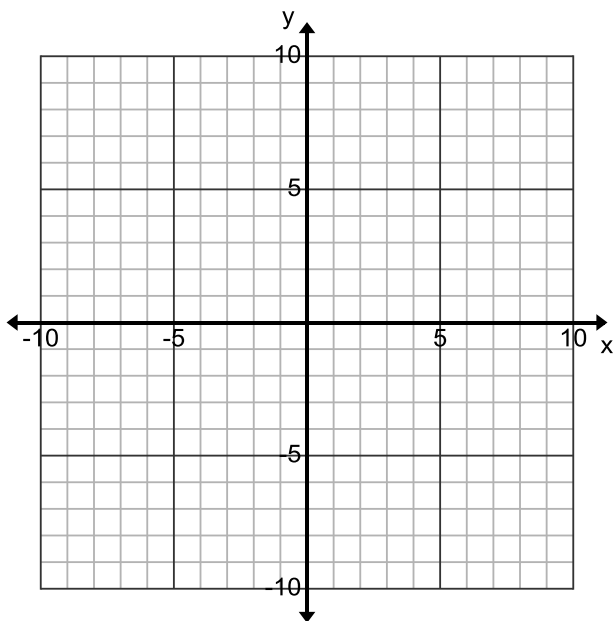
B. $D_{(2,0), \frac{1}{3}}(y = 3x - 6)$

Relationship: _____

Relationship: _____

Image Line Eq: _____

Image Line Eq: _____



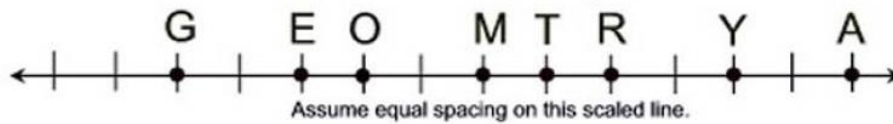
1. Given line m and point O **not** on line m . The image of line m is constructed through a dilation centered at O with a scale factor of 3. Which of the following statements best describes the image of line m ?

- a) a line passing through point O
- b) a line intersecting with line m
- c) a line parallel to line m
- d) a line perpendicular to line m

2. Line \overline{AB} is dilated with a center of dilation at A and a scale factor of 2. Which of the following statements will be true about \overline{AB} and its image $\overline{A'B'}$?

- a) The slope of $\overline{A'B'}$ will be twice the slope of \overline{AB} .
- b) The slope of $\overline{A'B'}$ will be half the slope of \overline{AB} .
- c) The slope of $\overline{A'B'}$ will be two more than the slope of \overline{AB} .
- d) The slope of $\overline{A'B'}$ will be the same as the slope of \overline{AB} .

3. For the scaled line shown below, determine the image points which represent the dilations.



- a) $D_{O,2}(M) = \underline{\hspace{2cm}}$ b) $D_{O,3}(E) = \underline{\hspace{2cm}}$ c) $D_{O,\frac{1}{4}}(A) = \underline{\hspace{2cm}}$
 d) $D_{O,-1}(T) = \underline{\hspace{2cm}}$ e) $D_{M,2}(R) = \underline{\hspace{2cm}}$

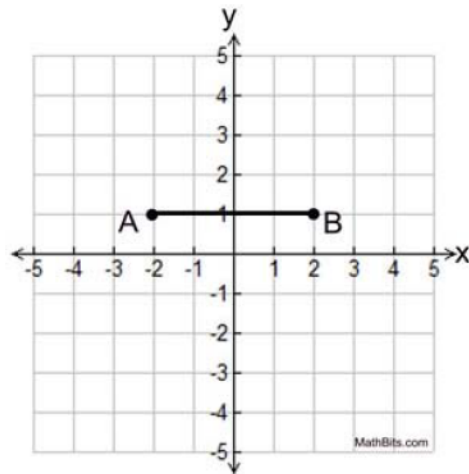
4. Point O is not on \overline{AB} . When \overline{AB} is dilated with the center of the dilation at O with a positive scale factor, image $\overline{A'B'}$ is shorter than \overline{AB} . What must be true about the scale factor?

- a) The scale factor is $k > 1$.
 b) The scale factor is $0 < k < 1$.
 c) The scale factor is $k = 1$.
 d) The lengths of \overline{AB} and $\overline{A'B'}$ are not related to scale factor k .

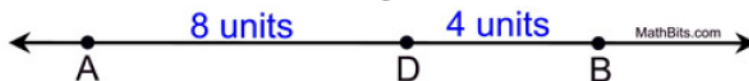
5. If $AB = 16$ inches and \overline{AB} is dilated by a scale factor of $\frac{3}{2}$, find $A'B'$.

6. \overline{AB} , shown at the right, is dilated with a dilation centered at the origin and a scale factor of $\frac{5}{2}$. Which of the following statements regarding \overline{AB} is NOT true?

- a) \overline{AB} will be parallel to $\overline{A'B'}$.
 b) $AB = \frac{5}{2} \cdot A'B'$
 c) $\overline{A'B'}$ is an enlargement of \overline{AB} .
 d) Coordinates of A' will be $(-5, 2.5)$.



7. Given \overline{AB} with point D on \overline{AB} as shown below. A dilation on D is centered at A with a scale factor of 2. Determine if the following statements are TRUE or FALSE.



- a) D' lies on line \overline{AB} . b) D' lies between A and D .
 c) D' lies on \overline{AB} . d) D' is 16 units from A .
 e) $BD' = 8$ units.