DO NOW

The table below shows the coordinates of triangle RST and the coordinates of R' in triangle R'S'T'. Triangle R'S'T' is a dilation of triangle RST centered at the origin.

image / original

Triangle RST		Triangle R'S'T'	
R	(–2, –3)	R'	(–6, –9)
S	(0, 2)	S'	(0, 6)
T	(2, –3)	T'	(6, –9)

→ K = 3

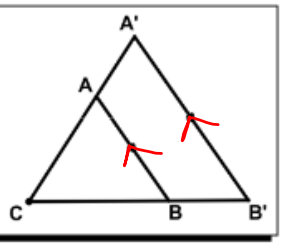
What are the coordinates of point S' and point T'?

Dec 12-12:59 PM

THE TWO PRIMARY PROPERTIES OF DILATIONS

If a dilation of a line segment $\overline{AB}$ not containing the center by a scale factor of k produces $\overline{A'B'}$ then:

1. $A'B' = k \cdot AB$ → $k = \frac{A'B'}{AB}$
2. $\overline{A'B'} \parallel \overline{AB}$



1. To find k, divide the image length by the original

center of dilation

$$k = \frac{A'B'}{AB} \quad \text{or} \quad k = \frac{CB'}{CB}$$

2. A segment and its image will be PARALLEL
   - A dilation of a line passing through the center of the dilation is on the same line.

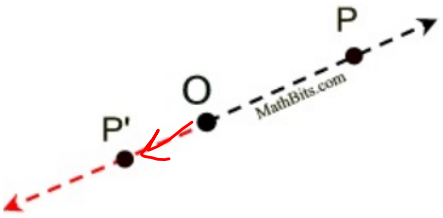
Dec 12-10:03 AM

What happens when the scale factor k is NEGATIVE?

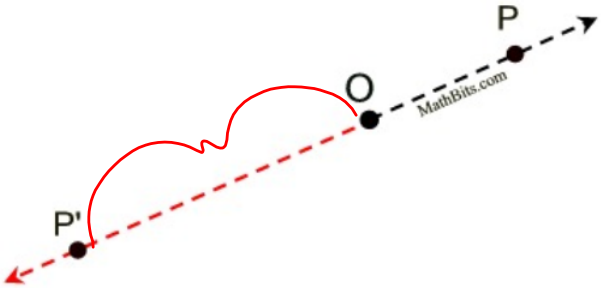
Negative sign indicates opposite direction

If $k < 0$, the image will move to the opposite side of the center and rotate 180°

Center of dilation O, scale factor of -½.

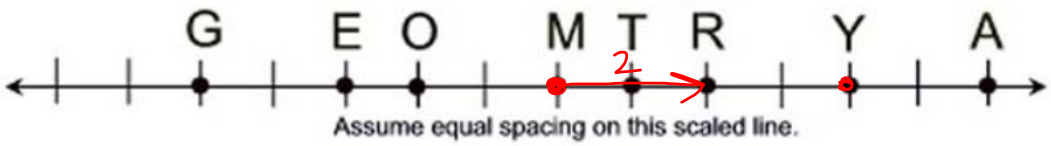


Center of dilation O, scale factor of -2.



Mar 1-10:01 AM

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



a) $D_{O,2}(M) =$ R (OM)

b) $D_{O,3}(E) =$ G (OE)

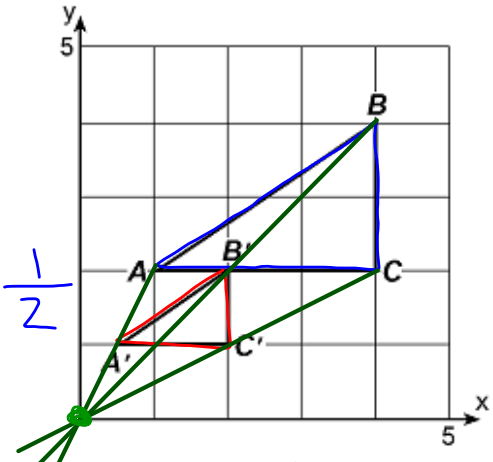
c) $D_{O,\frac{1}{4}}(A) =$ M (OA = 8)

d) $D_{O,-1}(T) =$ G (OT)

e) $D_{M,2}(R) =$ Y (MR)

Mar 1-12:53 PM

What is the scale factor of the dilation shown below?



$K = \frac{\text{image}}{\text{original}}$

$\frac{B'C'}{BC} = \frac{1}{2}$

$K = \frac{1}{2}$

What are the coordinates of the center of dilation?

Connect the original points to their image points

Where the lines intersect will be the location of the center of dilation!

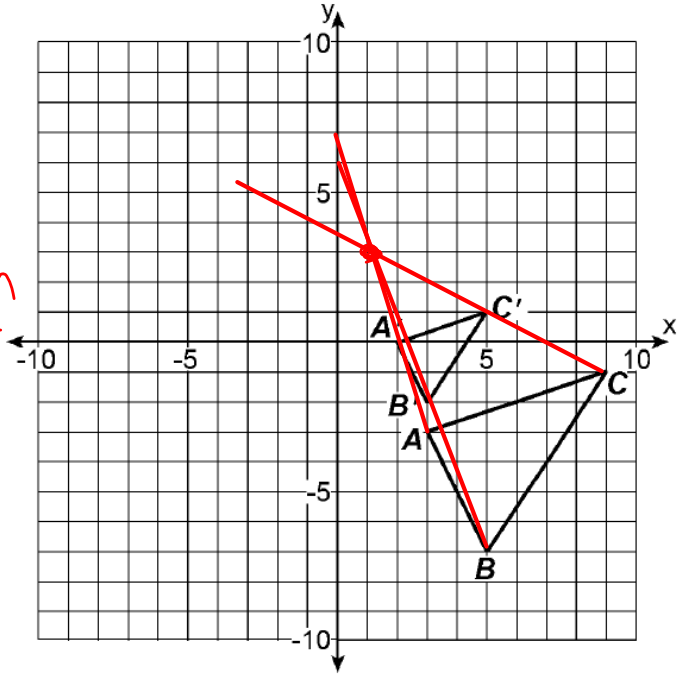
A → A' C → C'

B → B'

(0,0)

Dec 12-1:01 PM

Triangle $A'B'C'$ is the image of triangle ABC after a dilation.
Determine the coordinates of the center of dilation and the scale of dilation.



center of dilation FIRST

(1, 3)

$\frac{A'C'}{AC}$

$\frac{\text{rise } 1 \to 3}{\text{run } 2 \to 6}$

$\frac{1}{2}$

Dec 12-1:05 PM