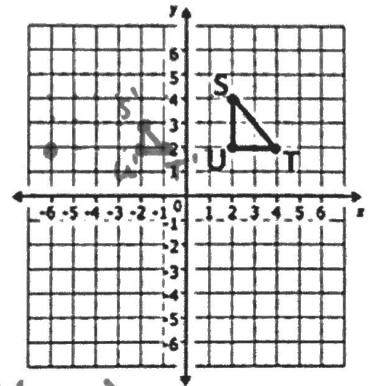


# 1.9 Dilations with Different Centers Notes

## Method 1: Scaling the Distance

- ① Plot new center
  - ② From new center, count how far we move  $\frac{1}{2}$  in what direction to get to each point.
  - ③ multiply each distance by the Scale Factor
- S) up 2, right 8  $\rightarrow$  up 1, right 4  
 U) right 8  $\rightarrow$  right 4     $S'(-2, 3)$   
 T) right 10  $\rightarrow$  right 5     $U'(-2, 2)$   $T'(-1, 2)$

6) Scale Factor:  $\frac{1}{2}$   
Center:  $(-6, 2)$

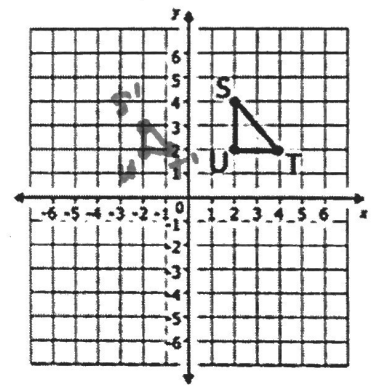


## Method 2: Algebraic

- ① Subtract new center
- ② Apply the rule  $(x, y) \rightarrow (\frac{1}{2}x, \frac{1}{2}y)$
- ③ Add new center

	$S(2, 4)$	$U(2, 2)$	$T(4, 2)$
①	$-(-6, 2)$	$-(-6, 2)$	$-(-6, 2)$
	<hr/>	<hr/>	<hr/>
	$(8, 2)$	$(8, 0)$	$(10, 0)$
②	$(4, 1)$	$(4, 0)$	$(5, 0)$
	$+(-6, 2)$	$+(-6, 2)$	$+(-6, 2)$
	<hr/>	<hr/>	<hr/>
	$S'(-2, 3)$	$U'(-2, 2)$	$T'(-1, 2)$

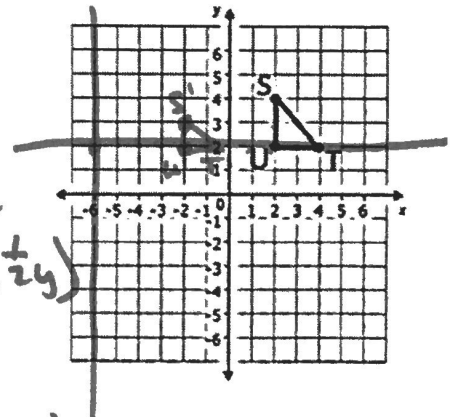
6) Scale Factor:  $\frac{1}{2}$   
Center:  $(-6, 2)$



## Method 3: Re-Draw X and Y axis.

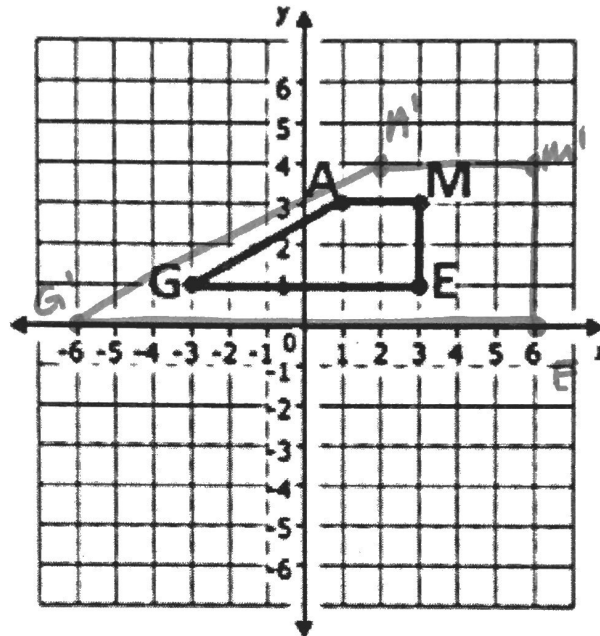
- ① Plot new center & re-draw x & y axis.
- ② using new origin, identify the points.  
 $S(8, 2) \rightarrow S'(4, 1)$   
 $U(8, 0) \rightarrow U'(4, 0)$   
 $T(10, 0) \rightarrow T'(5, 0)$
- ③ Apply rule  $(x, y) \rightarrow (\frac{1}{2}x, \frac{1}{2}y)$
- ④ using new origin, plot new points.

6) Scale Factor:  $\frac{1}{2}$   
Center:  $(-6, 2)$



Use your preferred method to dilate the pre-image about the point.

- 8) Scale Factor:  $2$   
Center:  $(0, 2)$



$$G'(-6, 0)$$

$$A'(2, 4)$$

$$M'(6, 4)$$

$$E'(6, 0)$$