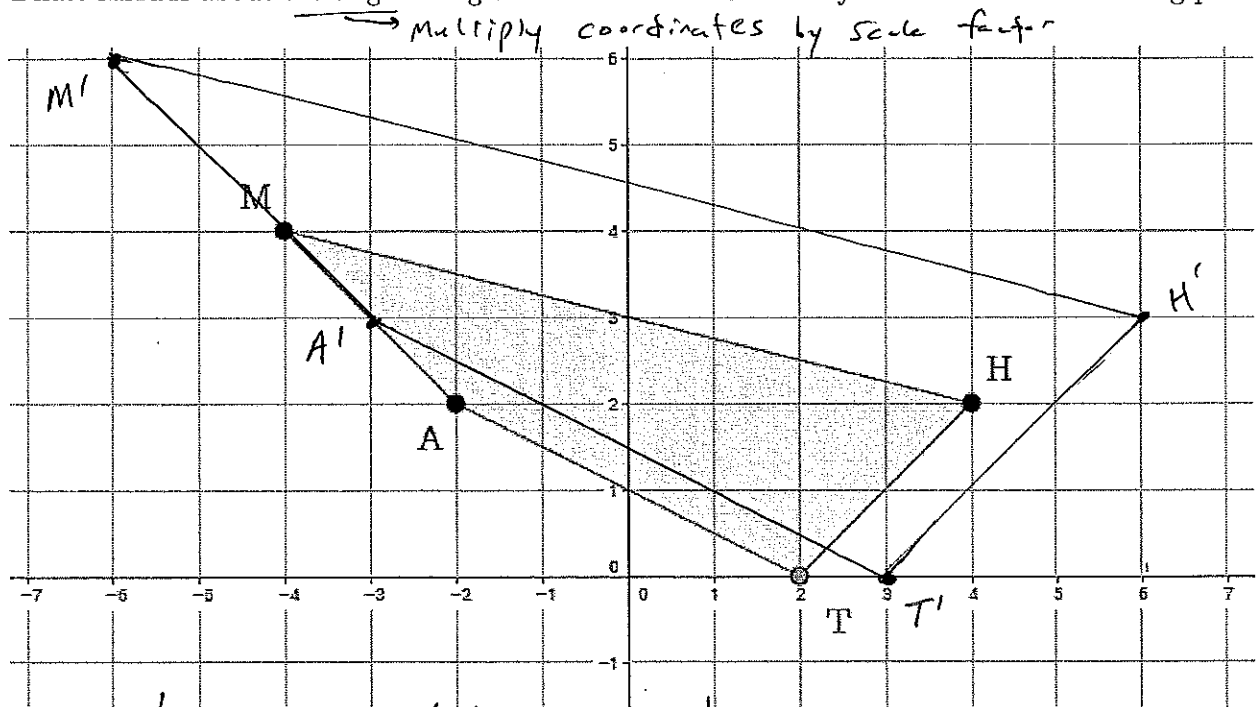
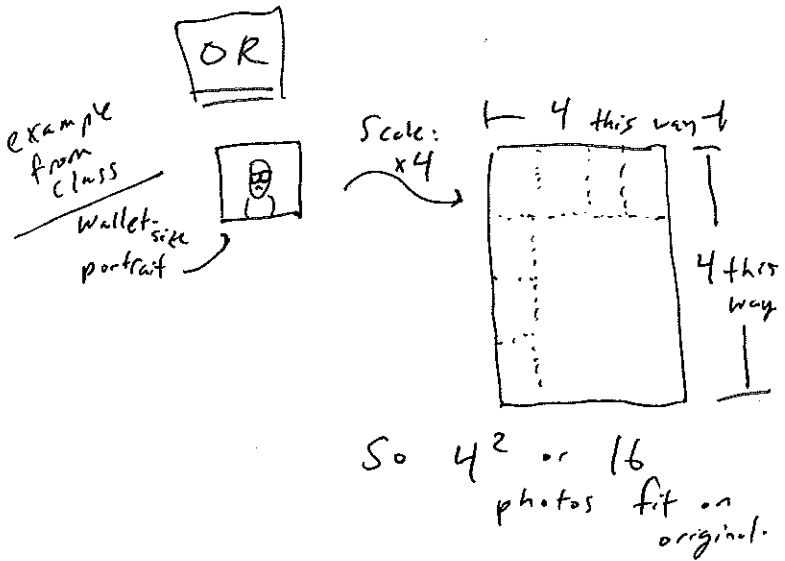
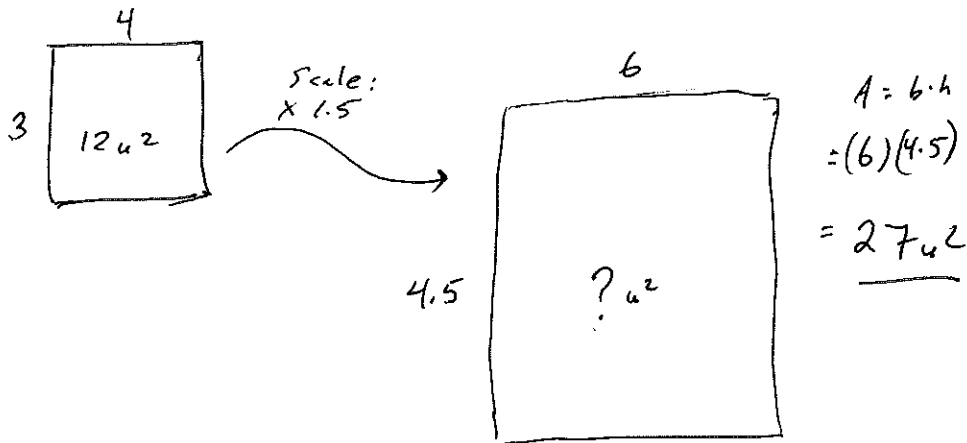


1. Dilate MATH about the origin using a scale factor of 1.5. Label your new coordinates using primes.



$M(-4, 4)$	$A(-2, 2)$	$T(2, 0)$	$H(4, 2)$
$\times 1.5 \quad \times 1.5$	$\times 1.5 \quad \times 1.5$	$\times 1.5 \quad \times 1.5$	$\times 1.5 \quad \times 1.5$
$M'(-6, 6)$	$A'(-3, 3)$	$T'(3, 0)$	$H'(6, 3)$

2. The area of MATH is 12 square units. What is the area of M'A'T'H' based on your dilation in #1?



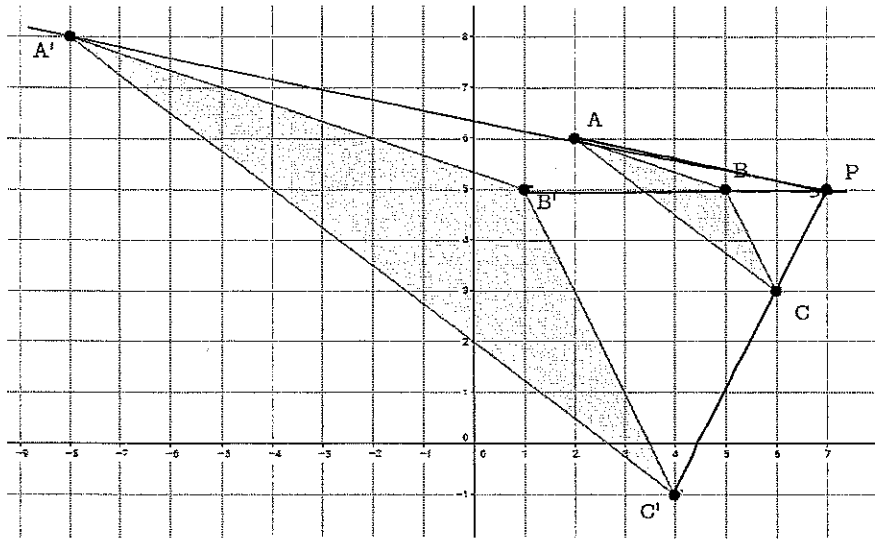
Which means:

$$\text{Area of new} = \text{Area of old} \times (\text{Scale factor})^2$$

$$A_{\text{new}} = 12 \cdot (1.5)^2$$

$$= 27$$

SRT-A1b



3. $\Delta A'B'C'$ is a dilation of ΔABC with center of dilation P as shown. What is the scale factor of this dilation?

Note that \overline{PB} and $\overline{PB'}$ lie on the grid.

So, $\overline{PB} = 2$ units

$\overline{PB'} = 6$ units

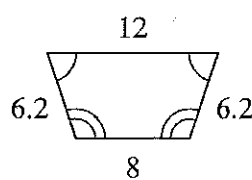
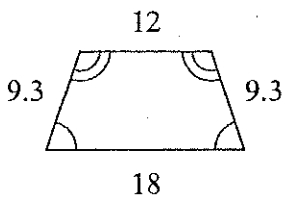
$$\frac{\text{new}}{\text{old}} \Rightarrow \frac{6}{2} = \boxed{3}$$

↑
Scale factor

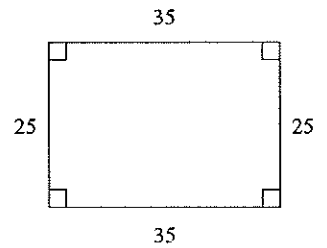
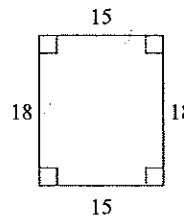
SRT-A2a:

Determine if the two figures shown are similar. If so, also determine the ratio of the smaller to the larger figure.

4.



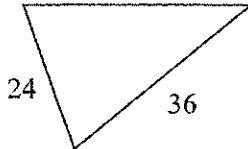
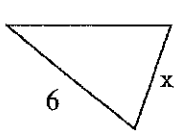
5.



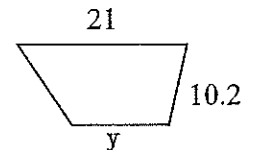
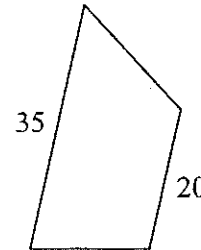
See next page

Each pair of figures shown below is similar. Find the missing side lengths indicated by the variable.

6.

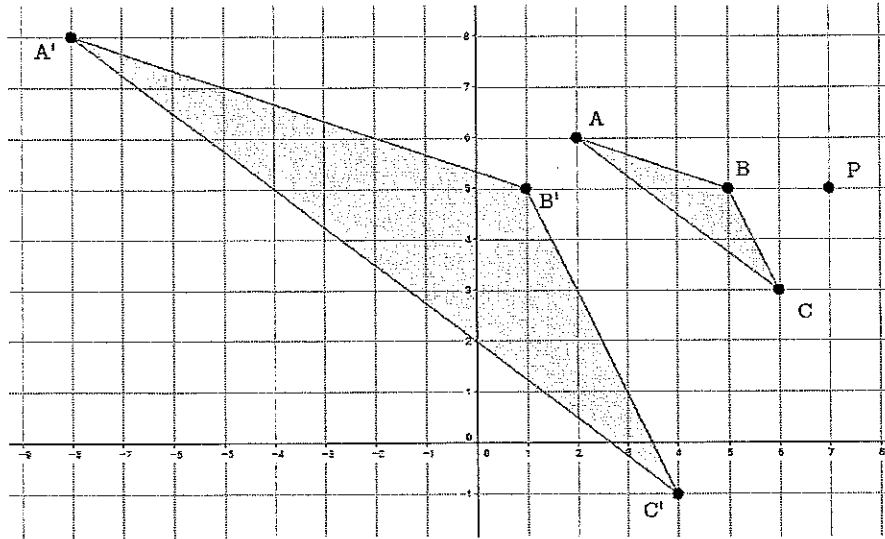


7.



See next page

SRT-A1b

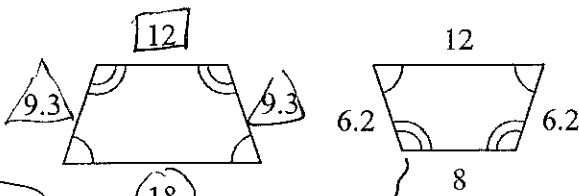


3. $\Delta A'B'C'$ is a dilation of ΔABC with center of dilation P as shown. What is the scale factor of this dilation?

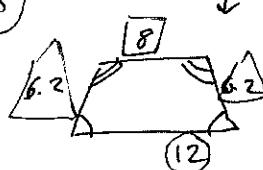
SRT-A2a:

Determine if the two figures shown are similar. If so, also determine the ratio of the smaller to the larger figure.

4.



Tip Redraw so they're oriented the same way:



Ratios of Matching parts:

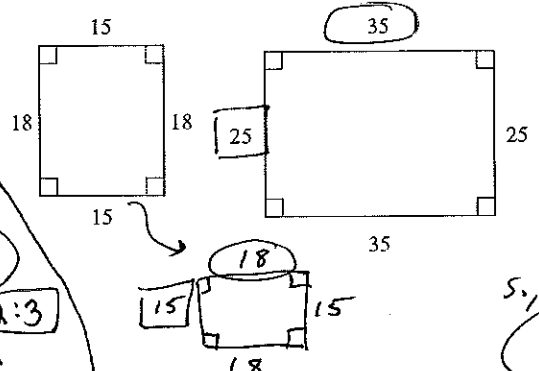
$$\frac{8}{12} \Rightarrow \frac{2}{3}$$

$$\frac{6.2}{9.3} \Rightarrow \frac{2}{3}$$

$$\frac{12}{18} \Rightarrow \frac{2}{3}$$

← SAME! →

5.



yes! 2:3

$$\frac{15}{25} \Rightarrow \frac{3}{5}$$

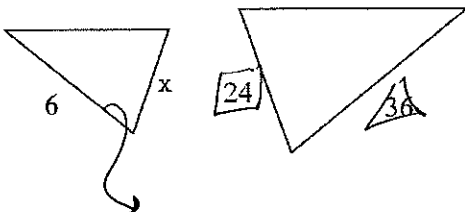
$$\frac{18}{35} \Rightarrow \frac{18}{35}$$

← NOT SAME →

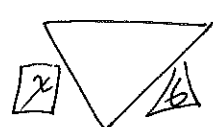
No!

Each pair of figures shown below is similar. Find the missing side lengths indicated by the variable.

6.



redraw:



Set up ratios:

$$\frac{24}{x} = \frac{36}{6}$$

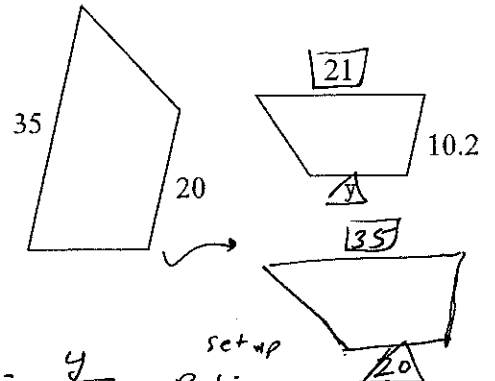
Cross multiply

$$24 \cdot 6 = 36x$$

$$\frac{144}{36} = \frac{36x}{36}$$

$$4 = x$$

7.



$$\frac{21}{35} = \frac{y}{20}$$

Setup Ratio

$$21 \cdot 20 = 35y$$

$$\frac{420}{35} = \frac{35y}{35}$$

$$12 = y$$

Cross multiply

simplify, then divide