

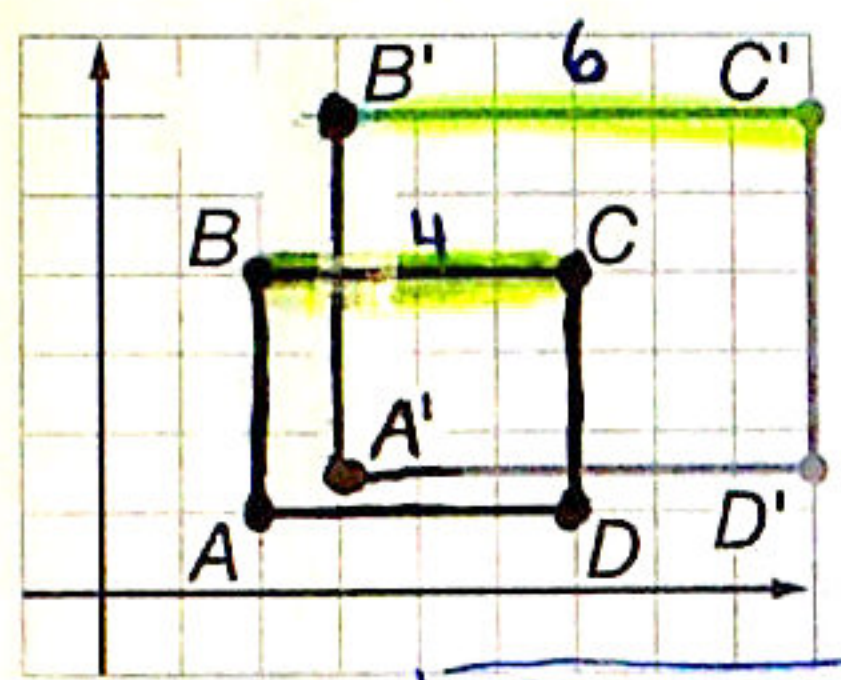
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Name: Key

Date: _____ Period: _____

Midterm Q3 Review

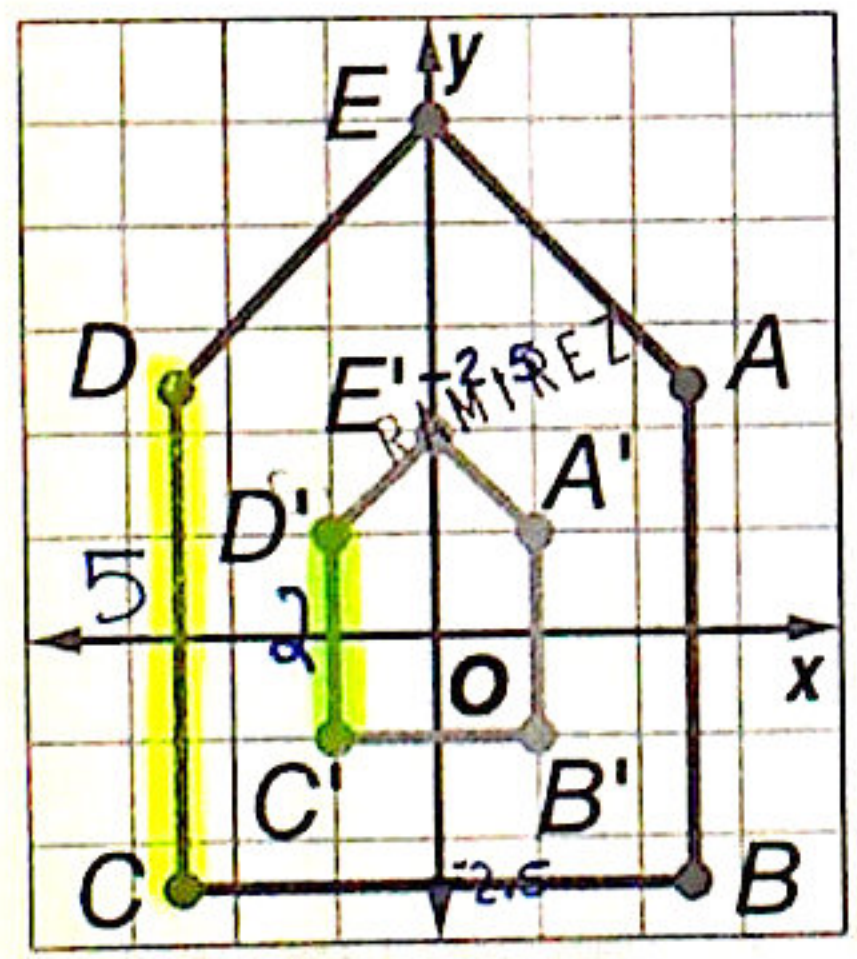
1. Find the scale factor of the dilation.



Scale factor: $\frac{3}{2}$ or 1.5

$$\begin{aligned}
 S.f. &= \frac{\text{new}}{\text{original}} \\
 &= \frac{6}{4} \\
 &= \frac{3}{2}
 \end{aligned}$$

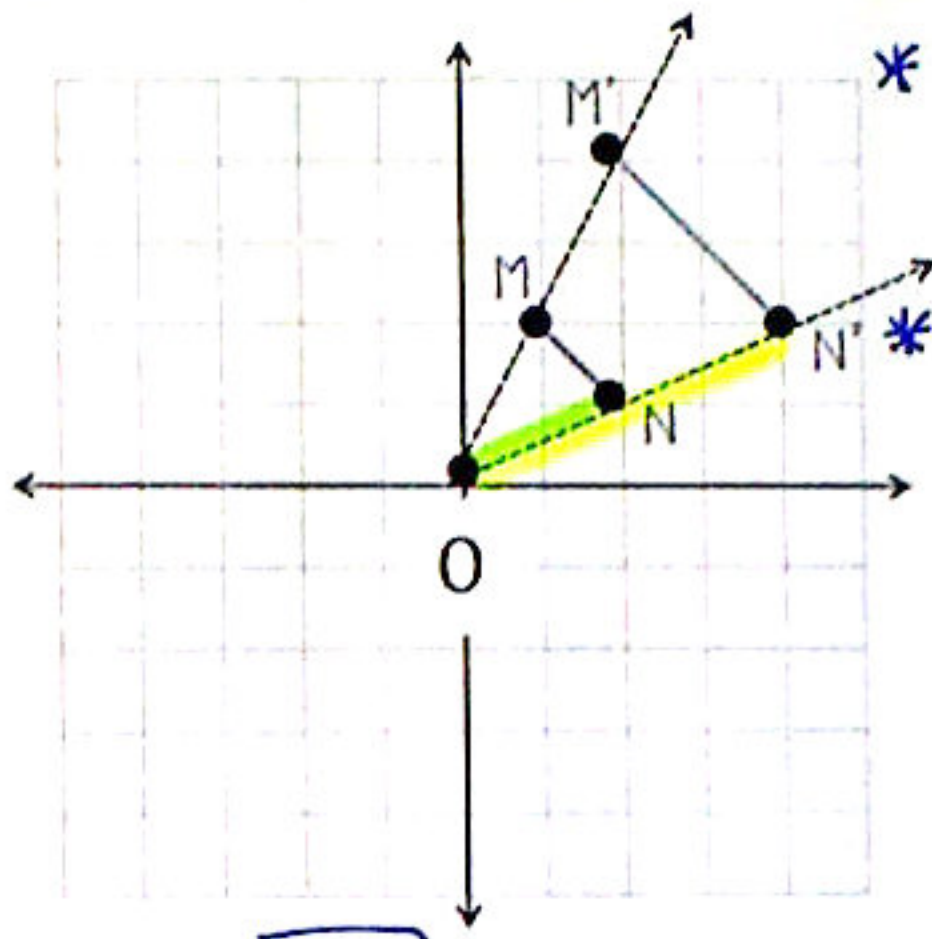
3. Find the scale factor of the dilation.



Scale factor: $\frac{2}{5}$

$$\begin{aligned}
 S.f. &= \frac{\text{new}}{\text{original}} \\
 &= \frac{2}{5}
 \end{aligned}$$

2. Compare the lengths of ON and O'N'.



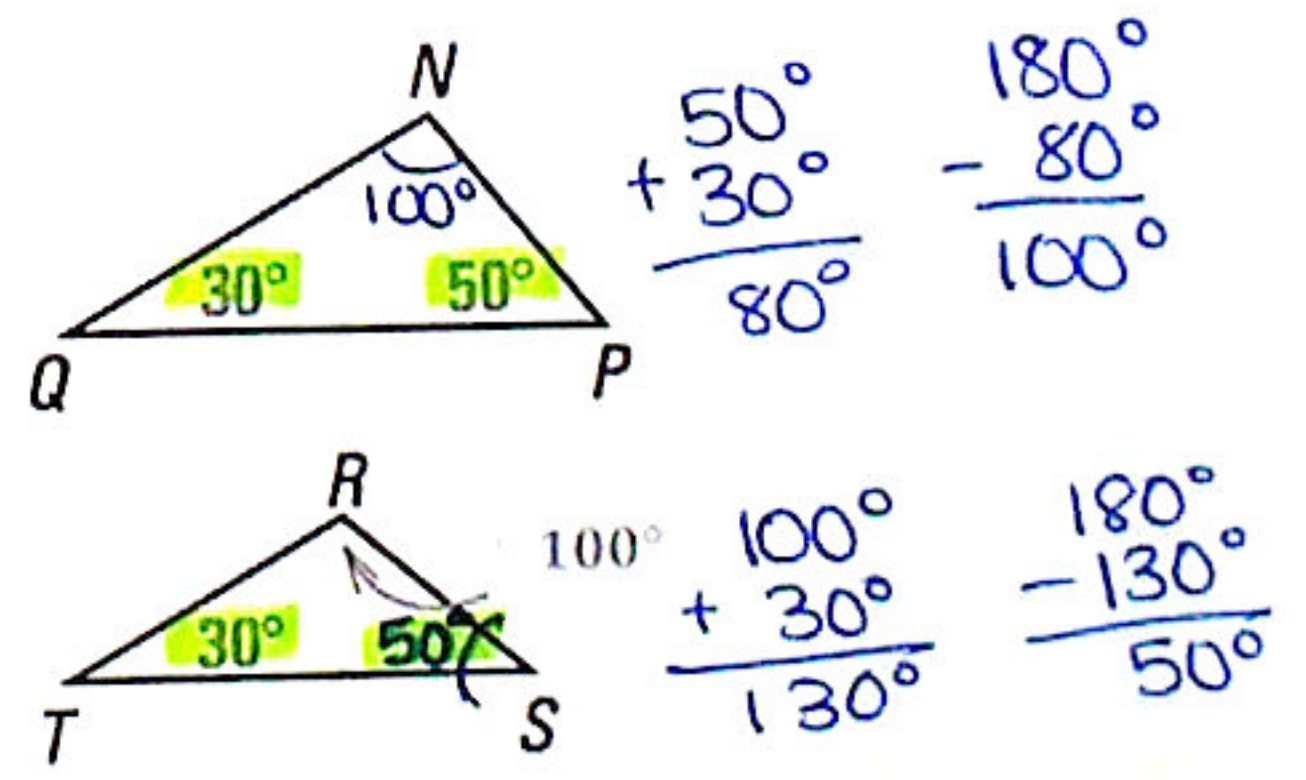
* $O \rightarrow N$
2 right, 1 up
* $O \rightarrow N'$
4 right, 2 up

$\frac{\text{New}}{\text{Original}}$

$$\frac{4}{2} = 2$$

O'N' is 2 times the length of ON.

4. Determine if the triangles are similar. If so, write a similarity statement.

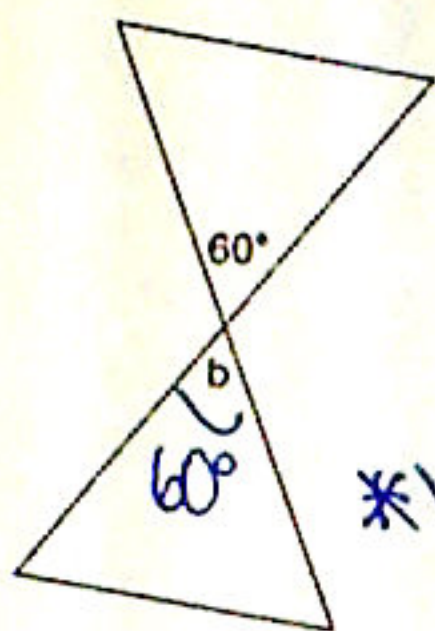


$\triangle NPQ \sim \triangle RST$

by AA.

* Angle-Angle (AA) postulate says that if at least two angles of the triangles are congruent, then the triangles must be similar.

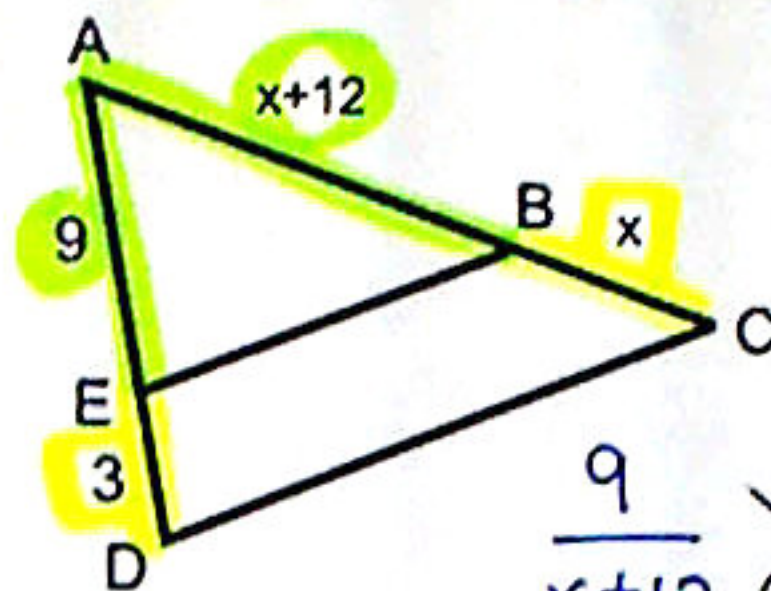
5. What is the measure of $\angle b$.



$$m\angle b = \boxed{60^\circ}$$

*Vertical angles are congruent (\cong)

6. Solve for x.



$$\frac{9}{x+12} \times \frac{3}{x}$$

$$9x = 3(x+12)$$

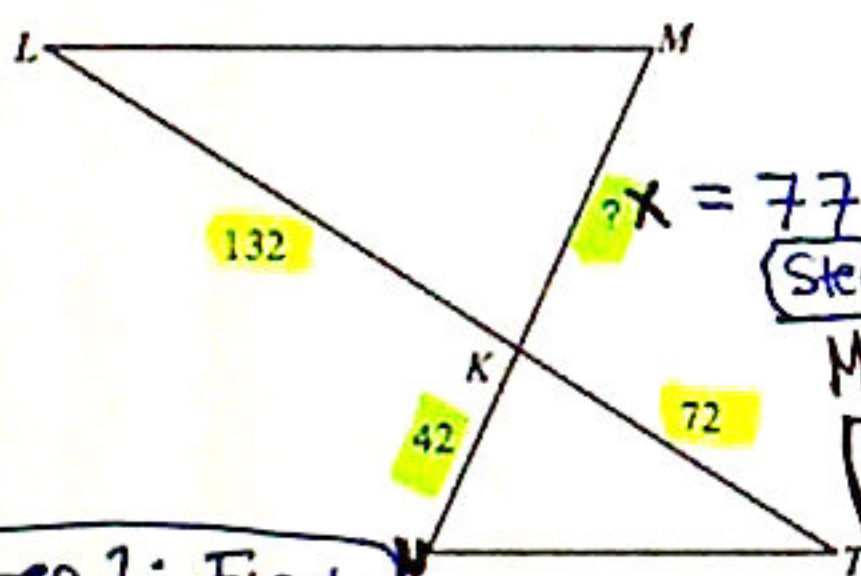
$$9x = 3x + 36$$

$$-3x \quad -3x$$

$$6x = 36$$

$$\boxed{x = 6}$$

7. Find the distance from point M to point U.



Step 2: Find MU

$$MU = 77 + 42$$

$$\boxed{MU = 119}$$

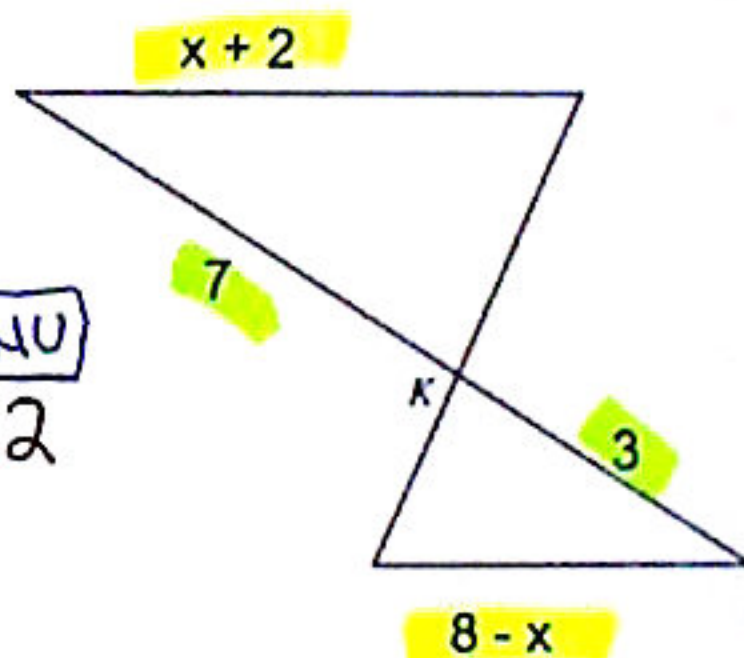
Step 2: Find x

$$\frac{132}{72} \times \frac{x}{42}$$

$$72x = \frac{5544}{72}$$

$$x = 77 \checkmark$$

8. Solve for x.



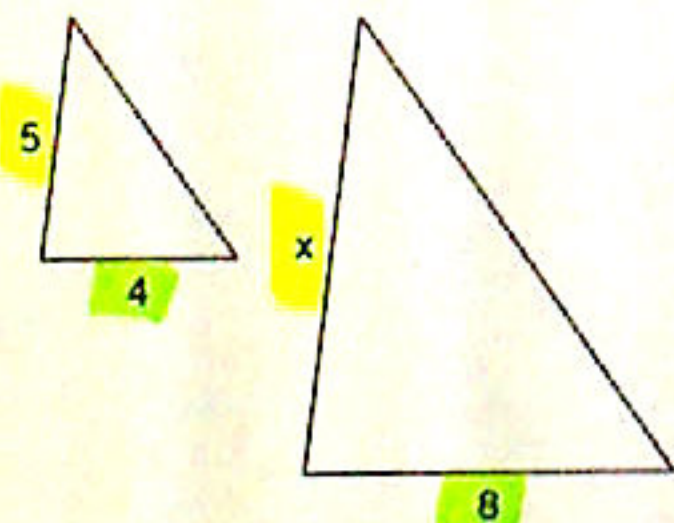
$$\frac{x+2}{8-x} \times \frac{7}{3}$$

$$3(x+2) = 7(8-x)$$

$$3x + 6 = 56 - 7x$$

$$10x = 50 \rightarrow \boxed{x = 5}$$

9. Find the missing side of the similar triangles.

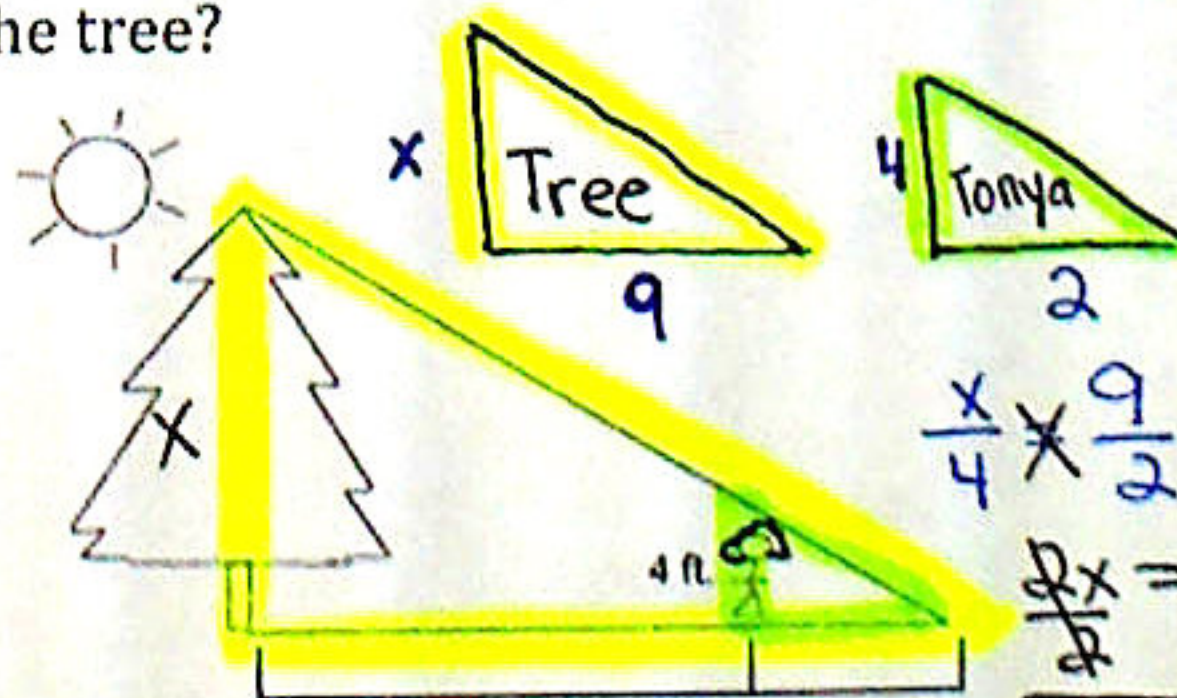


$$\frac{5}{x} \times \frac{4}{8}$$

$$\frac{4x}{8} = \frac{40}{8}$$

$$\boxed{x = 10}$$

10. Tonya is 4 ft. tall. She stands 7 feet in front of a tree and casts a shadow 2 feet long. How tall is the tree?



$$\frac{x}{4} \times \frac{9}{2}$$

$$\frac{9x}{8} = \frac{36}{2}$$

$$\boxed{x = 18}$$

The tree is 18 ft tall.