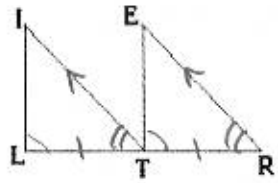
Geometry Unit 2 Review

Name Key

1. **Given:** $\overline{LT} \cong \overline{TR}$, $\angle ILT \cong \angle ETR$, $IT \parallel ER$

Prove: $\triangle LIT \cong \triangle TER$



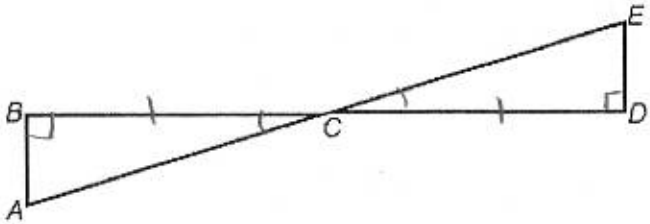
Statement	Reason
① $\overline{LT} \cong \overline{TR}$	① Given
② $\angle ILT \cong \angle ETR$	② Given
③ $\overline{IT} \parallel \overline{ER}$	③ Given
④ $\angle ITL \cong \angle ERT$	④ Corr. ∠ Post.
⑤ $\triangle LIT \cong \triangle TER$	⑤ ASA

2. **Given:** C is midpoint of $\overline{BD}$

$\overline{AB} \perp \overline{BD}$

$\overline{BD} \perp \overline{DE}$

Prove: $\triangle ABC \cong \triangle EDC$



Statement	Reason
① C is the midpt of $\overline{BD}$	① Given
② $\overline{BC} \cong \overline{DC}$	② Def. of midpt
③ $\overline{AB} \perp \overline{BD}$, $\overline{BD} \perp \overline{DE}$	③ Given
④ ∠B & ∠D are rt ∠'s	④ Def of ⊥ lines
⑤ $\angle B \cong \angle D$	⑤ Rt ∠ ≅ thm
⑥ $\angle BCA \cong \angle DCE$	⑥ Vert. ∠ Thm
⑦ $\triangle ABC \cong \triangle EDC$	⑦ ASA

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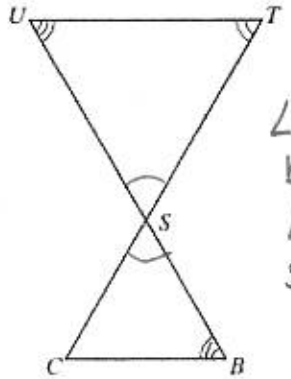
Decide if the following triangles are similar, congruent, or neither. Justify your conclusion.

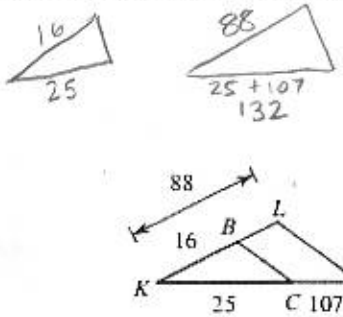
3.



$\angle TSU \cong \angle CSB$ by the Vert. $\angle$ Thm

So $\triangle TSU \sim \triangle CSB$ by AA

$\Delta STU \sim$ ΔSCB

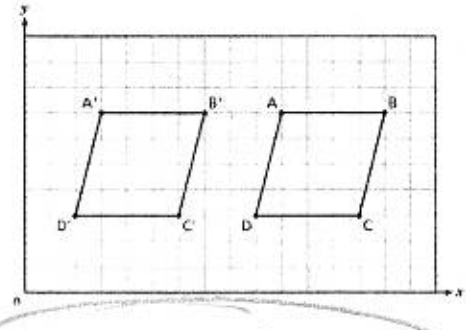


$\frac{16}{88} \neq \frac{25}{132}$

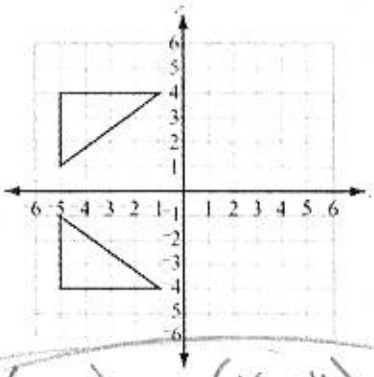
$0.181 \neq 0.189$

$\Delta KLM \sim$ _____ Not Similar

4. **Describe the transformation using *coordinate notation*.**



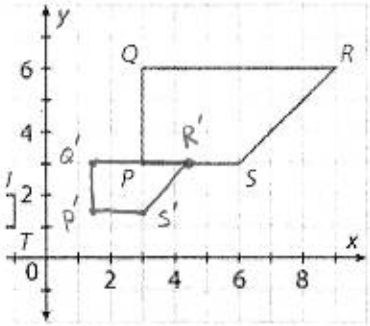
$(x, y) \rightarrow (x-7, y)$



$(x, y) \rightarrow (x, -y)$

5. Draw the image of each figure with a dilation centered at the origin with the given scale factor.

a. scale factor of ½.



$*\frac{1}{2}$

$P(3,3) \rightarrow P'(1.5, 1.5)$

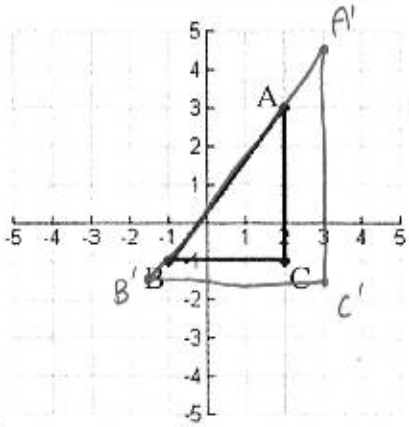
$Q(3,6) \rightarrow Q'(1.5, 3)$

$R(9,6) \rightarrow R'(4.5, 3)$

$S(6,3) \rightarrow S'(3, 1.5)$

$d = \sqrt{(x_2-x_1)^2 + (y_2-y_1)^2}$

b. scale factor of 1.5.



$A(2,3) \rightarrow A'(3, 4.5)$

$B(-1,-1) \rightarrow B'(-1.5, -1.5)$

$C(2,-1) \rightarrow C'(3, -1.5)$

$AB = \sqrt{3^2+4^2}$

$AB = 5$

$A'B' = \sqrt{4.5^2+6^2}$

$A'B' = 7.5$

c. Prove the figures are similar.

$\frac{S'P'}{SP} = \frac{1.5}{3} = 0.5$

$\frac{P'Q'}{PQ} = \frac{1.5}{3} = 0.5$

$\frac{Q'R'}{QR} = \frac{3}{6} = 0.5$

$\frac{R'S'}{RS} = \frac{2.12}{4.24}$

$\downarrow$

0.5

All the ratios are equal so the quadrilaterals are ~

$R'S' \rightarrow d = \sqrt{(4.5-3)^2 + (3-1.5)^2}$

$d = \sqrt{(1.5)^2 + (1.5)^2} = 2.12$

$RS \rightarrow d = \sqrt{(9-6)^2 + (6-3)^2}$

$d = \sqrt{3^2+3^2} = 4.24$

d. Prove the figures are similar.

$\frac{AB}{A'B'} = \frac{5}{7.5} = 0.\overline{66}$

$\frac{BC}{B'C'} = \frac{3}{4.5} = 0.\overline{66}$

$\frac{CA}{C'A'} = \frac{4}{6} = 0.\overline{66}$

All the ratios are equal so the triangles are ~

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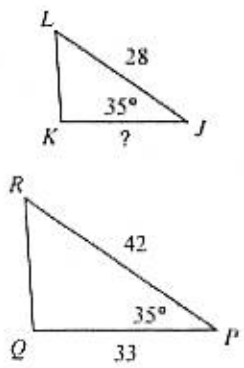
6. a. ~~Find all the angles in the triangles using the~~ given information. Then find the value of ?.



$\frac{28}{42} = \frac{?}{33}$

$42 \cdot ? = 28 \cdot 33$

$42 \cdot ? = 924$

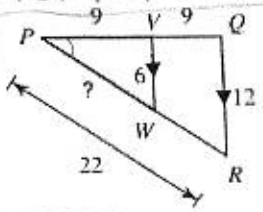
$? = 22$

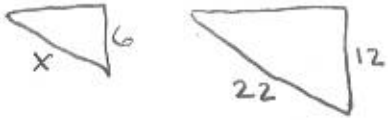
b. Are the triangles similar, congruent, or neither? Explain your conclusion.

The Δ's are similar if $\overline{KJ} = 22$.
They would be similar by SAS.

7. a. Explain why $\Delta PVW \sim \Delta PQR$.

$\angle P = \angle P$ by the ref prop of ≅
$\angle PWV \cong \angle PRQ$ by the corr. ∠ Post.
$\Delta PVW \sim \Delta PQR$ by AA





b. Find the length of $\overline{PW}$.

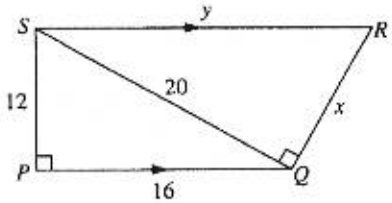
$\frac{x}{22} = \frac{6}{12}$

$12x = 22(6)$

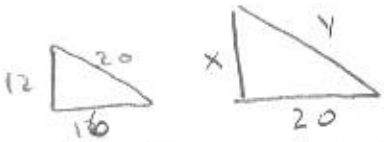
$\frac{12x}{12} = \frac{132}{12}$

$x = 11$

c. Explain why $\Delta SPQ \sim \Delta RQS$.



$\angle P \cong \angle RQS$
$\angle PQS \cong \angle QSR$ by the Alt. Int ∠ Thm.
So, $\Delta SPQ \sim \Delta RQS$ by AA



d. Find the values of x and y.

$\frac{12}{x} = \frac{16}{20}$

$\frac{20}{y} = \frac{16}{20}$

$x = 15$

$y = 25$