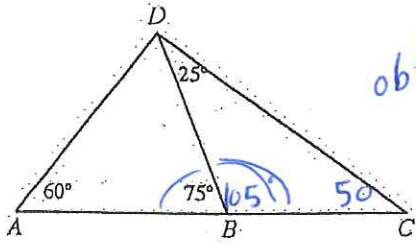
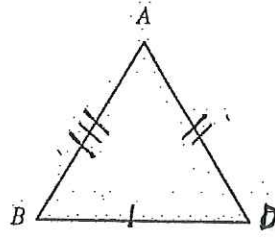


Key

1. Classify $\triangle DBC$ by its angles

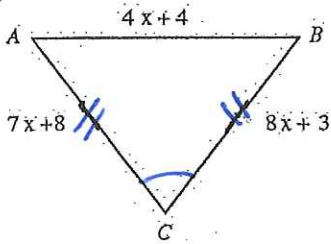


2. Classify $\triangle ABD$ by its side lengths



Isosceles

3. $\triangle ABC$ is an isosceles triangle. $\angle C$ is the vertex angle. Find the length of AB.



$$8x+3 = 7x+8$$

$$x = 5$$

$$AB = 4x+4$$

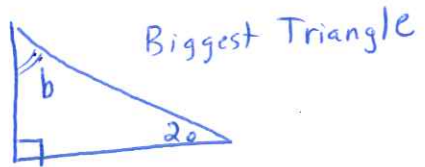
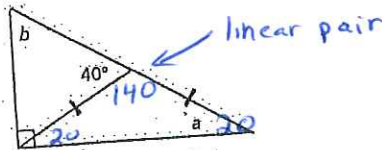
$$4(5)+4$$

$$AB = 24$$

4. Solve for the variables

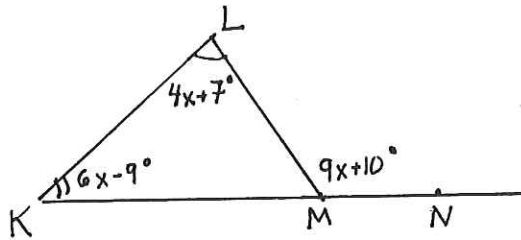
$$a = 20$$

$$b = 70$$



5. Solve for $m\angle K$.

Exterior Angle Theorem

$$63^\circ$$


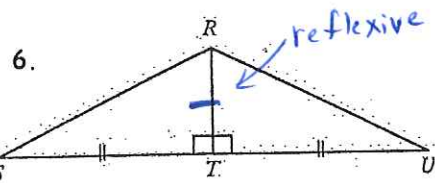
$$9x+10 = 4x+7 + 6x-9$$

$$9x+10 = 10x-2$$

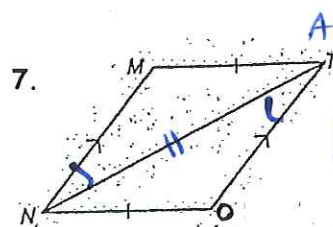
$$12 = x$$

$$\angle K = 6(12)-9$$

#6-10, Determine whether or not the triangles are congruent. State your reason. IF the Δ s are congruent, then write their congruence statement (i.e. name the two congruent triangles).

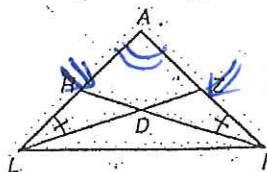


Yes,
SAS
 $\triangle STR \cong \triangle TTR$

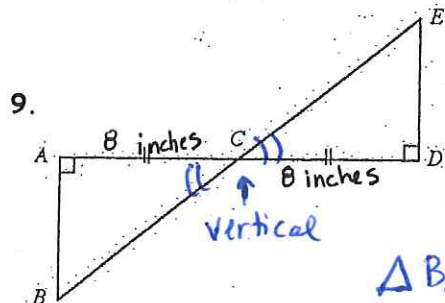


Alt-Interior Angles
No, ASS.

8. $\triangle LAI$ is isosceles with $LA = IA$.



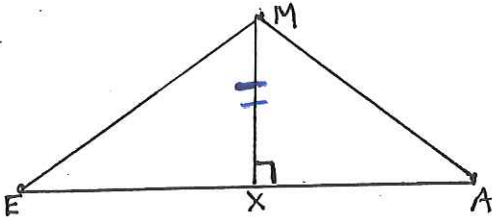
Yes, ASA
 $\triangle LAZ \cong \triangle IAR$



Yes,
ASA
 $\triangle BAC \cong \triangle EDC$

#6-10, Determine whether or not the triangles are congruent. State your reason. IF the Δ s are congruent, then write their congruence statement (i.e. name the two congruent triangles).

10.



No, not enough info

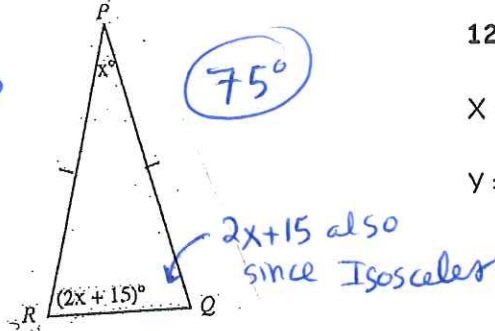
11. Solve for $m\angle Q$.

$$2x + 15 + 2x + 15 + x = 180$$

$$5x + 30 = 180$$

$$5x = 150$$

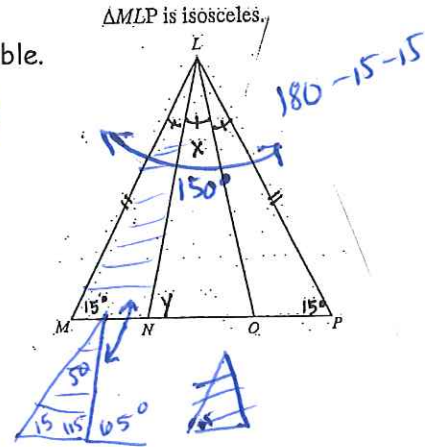
$$x = 30$$



12. Solve for each variable.

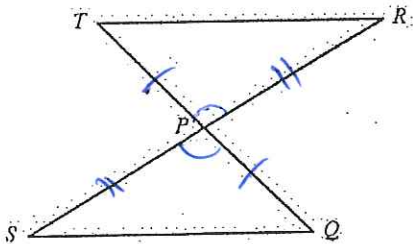
$$X = 150 \div 3 = 50^\circ$$

$$Y = 65^\circ$$

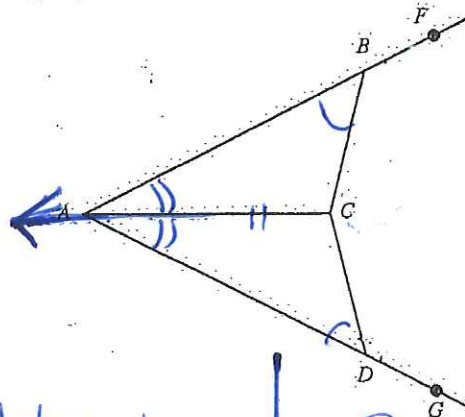


#13-14, Here's what you've been waiting for! Write a two-column proof for each.

13. Given: P is the midpoint of \overline{TQ} and \overline{RS} .
Prove: $\Delta TPR \cong \Delta QPS$



14. Given: $\angle CBA \cong \angle CDA$, \overline{AC} bisects $\angle BAD$
Prove: $\overline{AD} \cong \overline{AB}$



Statement

Reason

- | | |
|---|------------------|
| 1. P is midpt \overline{TQ} & \overline{RS} | 1. Given |
| 2. $TP = PQ$ | 2. def. midpoint |
| 3. $SP = PR$ | 3. def. midpoint |
| 4. $\angle TPR = \angle SPQ$ | 4. vertical |
| 5. $\Delta TPR \cong \Delta QPS$ | 5. SAS |

Statement

Reason

- | | |
|---|-----------------|
| 1. $\angle CBA = \angle CDA$ | 1. Given |
| 2. \overline{AC} bisects $\angle BAD$ | 2. Given |
| 3. $\angle BAC = \angle DAC$ | 3. def. bisects |
| 4. $AC = AC$ | 4. Reflexive |
| 5. $\Delta CAD \cong \Delta CAB$ | 5. AAS or SAA |
| 6. $\overline{AD} \cong \overline{AB}$ | 6. CPCTC |
| (parts, not Δ s) | |