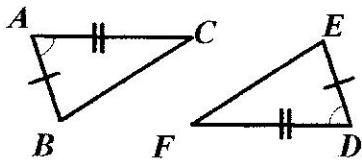
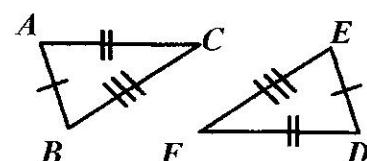
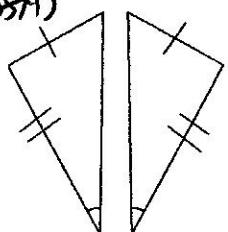
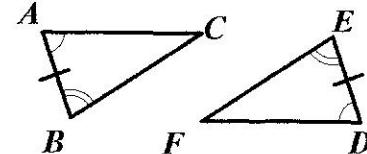
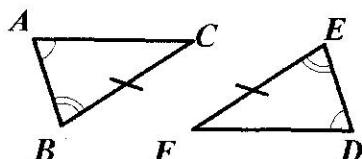
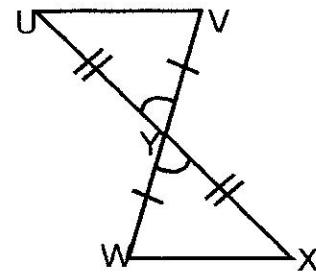
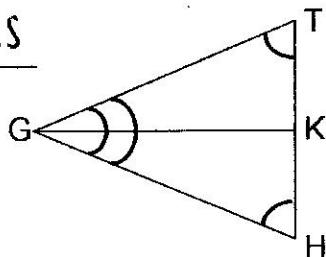
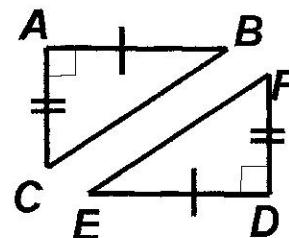
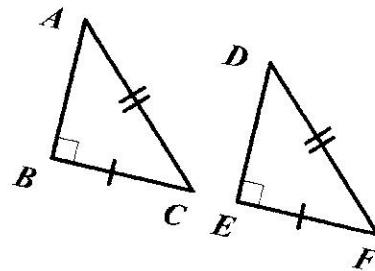
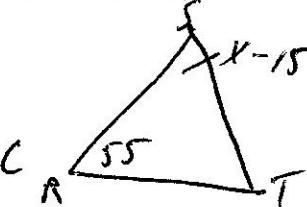
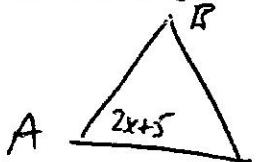


Are the triangles congruent? If so, state why (SSS, SAS, ASA, AAS, HL).
If there is not enough information, write N.E.I (not enough information).

1) SAS2) SSS3) N.E.I (SSA)4) ASA5) AAS6) SAS7) AAS8) LL9) HL

10. Given $\triangle ABC \cong \triangle RST$, $m\angle A = 2x + 5$, $m\angle S = x - 15$, and $m\angle R = 55$

a) Draw and label a figure to show the congruent triangles



$$2x + 5 = 55$$

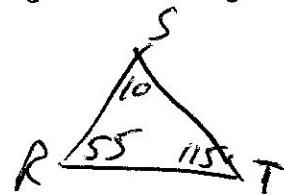
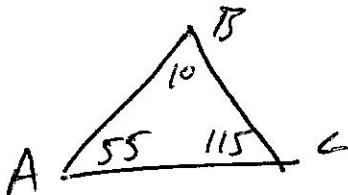
$$2x = 50$$

$$x = 25$$

b) Find the value of x

$$\boxed{25}$$

c) Find the measure of each of the angles in the triangles.



Draw $\triangle MNO$ and $\triangle RST$. Label the corresponding parts if $\triangle MNO \cong \triangle RST$

11. $\angle T \cong \underline{\angle O}$

14. $\overline{MO} \cong \overline{RT}$

12. $\overline{SR} \cong \underline{\overline{NM}}$

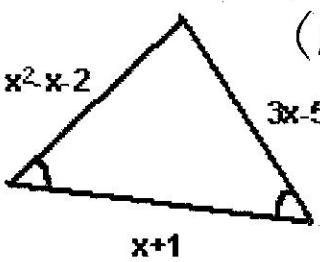
15. $\angle TSR \cong \angle ONM$

13. $\overline{TR} \cong \underline{\overline{MO}}$

16. $\angle NMO \cong \angle SRT$

Find the value of x for each:

17. $x = \underline{3}$

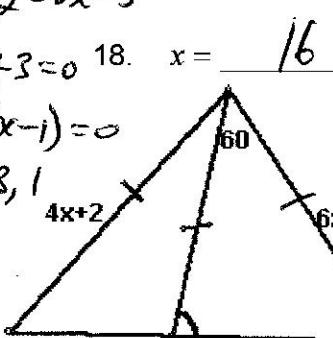


$$x^2 - x - 2 = 3x - 5$$

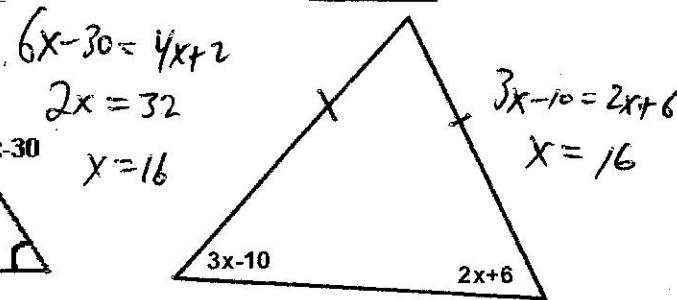
$$x^2 - 4x + 3 = 0$$

$$(x-3)(x-1) = 0$$

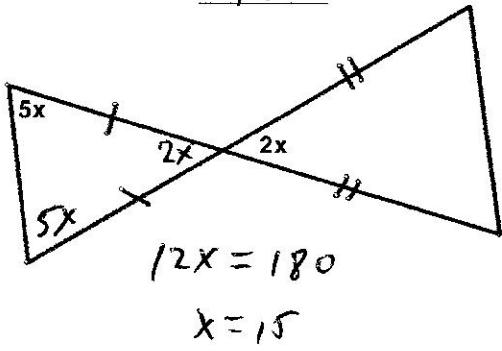
$$x = 3, 1$$



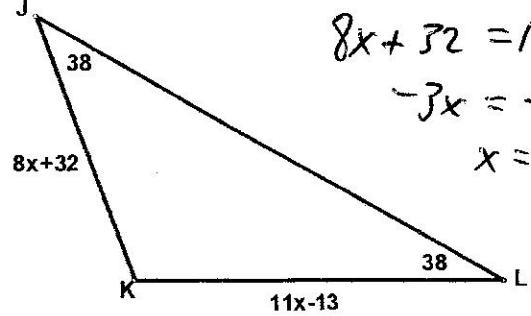
$$x = \underline{16}$$



20. $x = \underline{15}$



21. $JK = \underline{15}$



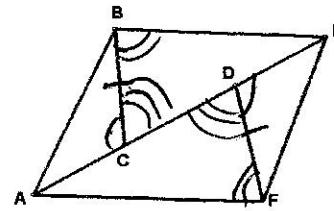
$$8x + 32 = 11x - 13$$

$$-3x = -45$$

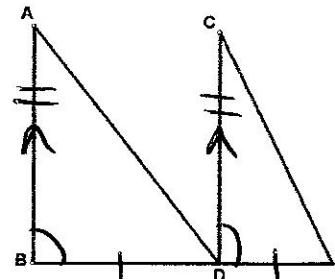
$$x = 15$$

Label the drawings with the appropriate information and state why the triangles are congruent.

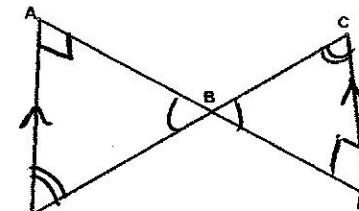
22. $\angle BCA \cong \angle EDF$, $\angle EBC \cong \angle AFD$, $\overline{BC} \cong \overline{DF}$,
 $\triangle BCE \cong \triangle FDA$ by AIA



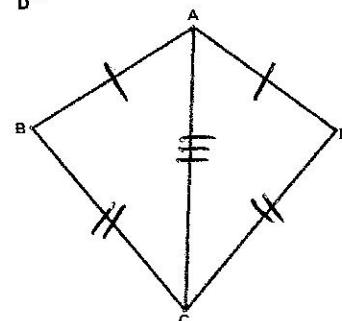
23. $\overline{AB} \parallel \overline{CD}$, D is a midpoint of \overline{BE} , $\overline{AB} \cong \overline{CD}$,
 $\triangle DBA \cong \triangle EDC$ by SAS



24. $\overline{AE} \perp \overline{DC}$, $\angle A \cong \angle E$, $\triangle ABD \cong \triangle$ by N.E.I.



25. $\overline{AB} \cong \overline{AD}$, $\overline{BC} \cong \overline{DC}$, $\triangle CAB \cong \triangle$ CAD, by SSS



26. $\triangle CDE$ is isosceles with base \overline{CD} . Draw $\triangle CDE$ and mark the congruent sides. If $CE = 8x + 2$, $ED = 2x + 5$, and $CD = 5x + 8$, find the lengths of each side of the triangle.

$$\begin{aligned} & \text{Diagram of } \triangle CDE \text{ with base } CD. CE \text{ and } ED \text{ are marked with single ticks.} \\ & 8x + 2 = 2x + 5 \\ & 6x = 3 \\ & x = \frac{1}{2} \\ & CE = 6 \\ & ED = 6 \\ & CD = 10.5 \end{aligned}$$

27. Given $\triangle ABC \cong \triangle DEF$, $AB = 15$, $BC = 20$, $AC = 25$ and $FE = 3x - 7$, find x.

$$\begin{aligned} & \text{Diagram of } \triangle ABC \text{ and } \triangle DEF. AB = 15, BC = 20, AC = 25. \\ & \text{Diagram of } \triangle DEF \text{ with } FE = 3x - 7. \\ & 3x - 7 = 20 \\ & 3x = 27 \\ & x = 9 \end{aligned}$$

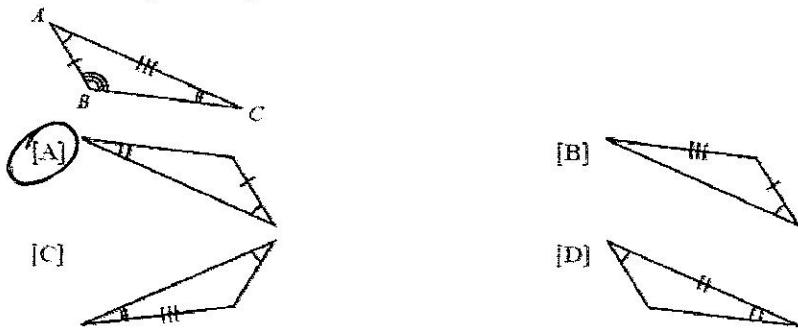
28. Given $\triangle ABC \cong \triangle DEF$, $DE = 10$, $EF = 13$, $DF = 16$ and $AC = 4x - 8$, find x.

$$\begin{aligned} & \text{Diagram of } \triangle ABC \text{ and } \triangle DEF. DE = 10, EF = 13, DF = 16. \\ & \text{Diagram of } \triangle DEF \text{ with } AC = 4x - 8. \\ & 4x - 8 = 16 \\ & 4x = 24 \\ & x = 6 \end{aligned}$$

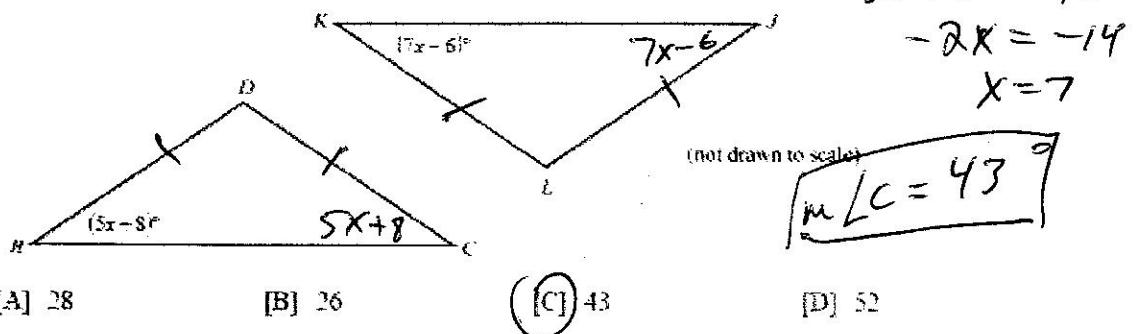
29. $\triangle CAT$ is a Right Triangle with legs CA and CT . If $m\angle C = 6x + 18$, find the value of 'x'.

$$\begin{aligned} & \text{Diagram of right triangle } \triangle CAT \text{ with right angle at } C. \\ & 6x + 18 = 90 \\ & 6x = 72 \\ & x = 12 \end{aligned}$$

30.

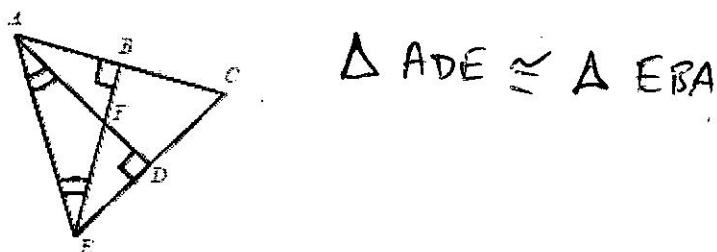
Which triangle is congruent to $\triangle ABC$?

31.

 $\triangle BCD$ is an isosceles triangle with base \overline{BC} , and $\triangle BCD \cong \triangle KJL$. Find $m\angle C$.

32.

Determine which triangles are congruent by AAS using the information in the diagram below:



- [A] $\triangle ABE \cong \triangle CBE$ [B] $\triangle ABE \cong \triangle EDA$ [C] $\triangle ADC \cong \triangle EBC$ [D] $\triangle BDF \cong \triangle EDF$