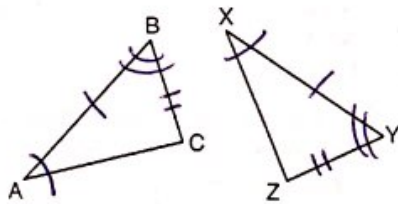


Chapter 4B Test Review

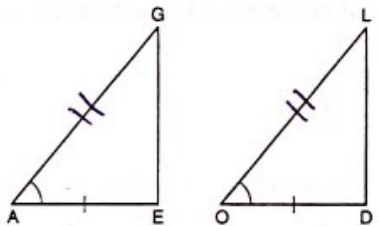
Multiple Choice - Identify the choice that best completes the statement or answers the question. Show ALL work to receive full credit.

- Side \overline{PQ} of $\triangle PQR$ is extended through Q to point T . Which statement is *not* always true?
 - $m\angle RQT > m\angle R$ ✓
 - $m\angle RQT > m\angle P$ ✓
 - $m\angle RQT = m\angle P + m\angle R$ ✓
 - $m\angle RQT > m\angle PQR$
- In the diagram below, $\triangle ABC \cong \triangle XYZ$.



Which two statements identify corresponding congruent parts for these triangles?

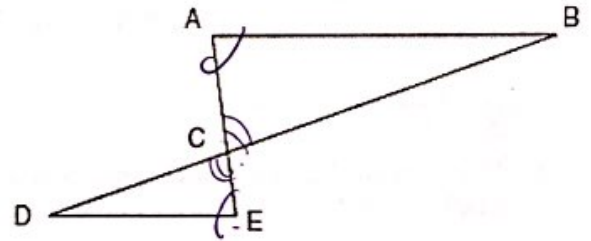
- $\overline{AB} \cong \overline{XY}$ and $\angle C \cong \angle Y$
 - $\overline{AB} \cong \overline{YZ}$ and $\angle C \cong \angle X$
 - $\overline{BC} \cong \overline{XY}$ and $\angle A \cong \angle Y$
 - $\overline{BC} \cong \overline{YZ}$ and $\angle A \cong \angle X$
3. In the diagram below of $\triangle AGE$ and $\triangle OLD$, $\angle GAE \cong \angle LOD$, and $\overline{AE} \cong \overline{OD}$.



To prove that $\triangle AGE$ and $\triangle OLD$ are congruent by SAS, what other information is needed?

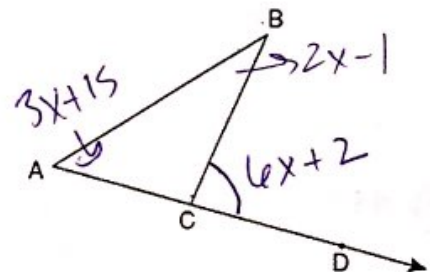
- $\overline{GE} \cong \overline{LD}$
- $\overline{AG} \cong \overline{OL}$
- $\angle AGE \cong \angle OLD$
- $\angle AEG \cong \angle ODL$

4. In the diagram of $\triangle ABC$ and $\triangle EDC$ below, \overline{AE} and \overline{BD} intersect at C , and $\angle CAB \cong \angle CED$.



Which method can be used to show that $\triangle ABC$ must be similar to $\triangle EDC$?

- SAS
 - AA
 - SSS
 - HL
5. In the diagram below, $\triangle ABC$ is shown with \overline{AC} extended through point D .



If $m\angle BCD = 6x + 2$, $m\angle BAC = 3x + 15$, and $m\angle ABC = 2x - 1$, what is the value of x ?

- 12
- $14\frac{10}{11}$
- 16
- $18\frac{1}{9}$

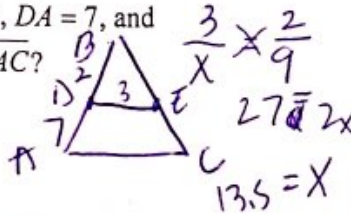
$$2x - 1 + 3x + 15 = 6x + 2$$

$$5x + 14 = 6x + 2$$

$$12 = x$$

6. In $\triangle ABC$, point D is on \overline{AB} , and point E is on \overline{BC} such that $DE \parallel AC$. If $DB = 2$, $DA = 7$, and $DE = 3$, what is the length of \overline{AC} ?

- a. 8
b. 9
c. 10.5
d. 13.5

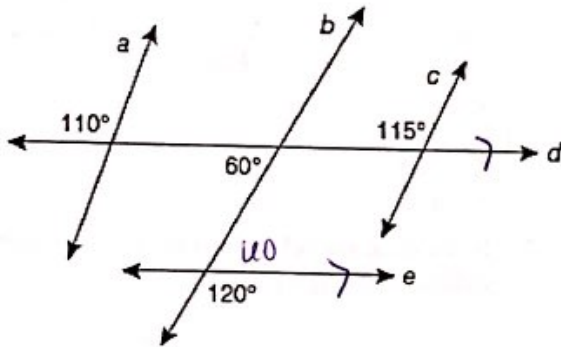


7. If $\triangle ABC \sim \triangle ZXY$, $m\angle A = 50$, and $m\angle C = 30$, what is $m\angle X$?

- a. 30
b. 50
c. 80
d. 100

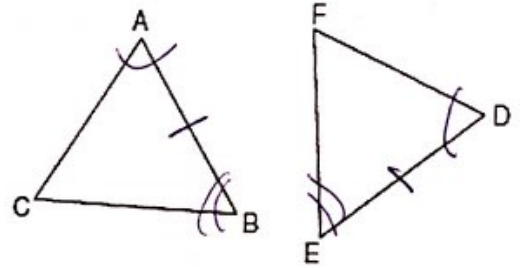
Handwritten work for question 7: $180 - 50 - 30 = \angle X$

8. Based on the diagram below, which statement is true?



- a. $a \parallel b$
b. $a \parallel c$
c. $b \parallel c$
d. $d \parallel e$

9. In the diagram of $\triangle ABC$ and $\triangle DEF$ below, $\overline{AB} \cong \overline{DE}$, $\angle A \cong \angle D$, and $\angle B \cong \angle E$.

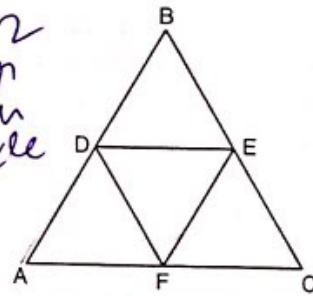


Which method can be used to prove $\triangle ABC \cong \triangle DEF$?

- a. SSS
b. SAS
c. ASA
d. HL

10. In the diagram below, the vertices of $\triangle DEF$ are the midpoints of the sides of equilateral triangle ABC , and the perimeter of $\triangle ABC$ is 36 cm.

Handwritten work for question 10: $\frac{36}{3} = 12$ (pointing to side length)



What is the length, in centimeters, of \overline{EF} ?

- a. 6
b. 12
c. 18
d. 4

11. In isosceles triangle ABC , $AB = BC$. Which statement will always be true?

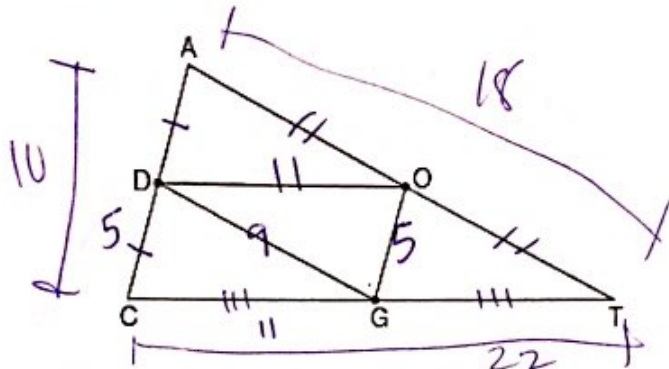
- a. $m\angle B = m\angle A$
b. $m\angle A > m\angle B$
c. $m\angle A = m\angle C$
d. $m\angle C < m\angle B$



Name: _____

ID: A

12. In the diagram below of $\triangle ACT$, D is the midpoint of AC , O is the midpoint of AT , and G is the midpoint of CT .

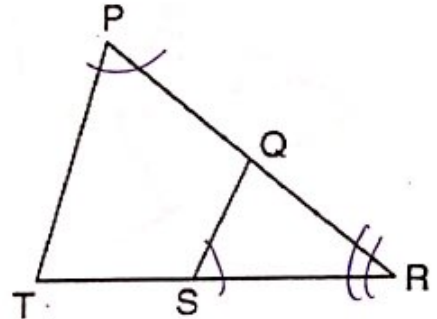


If $AC = 10$, $AT = 18$, and $CT = 22$, what is the perimeter of parallelogram $CDOG$?

- a. 21
- b. 25
- c. 32
- d. 40

$5 + 11 + 5 + 11$

13. In the diagram below of $\triangle PRT$, Q is a point on PR , S is a point on TR , QS is drawn, and $\angle RPT \cong \angle RSQ$.



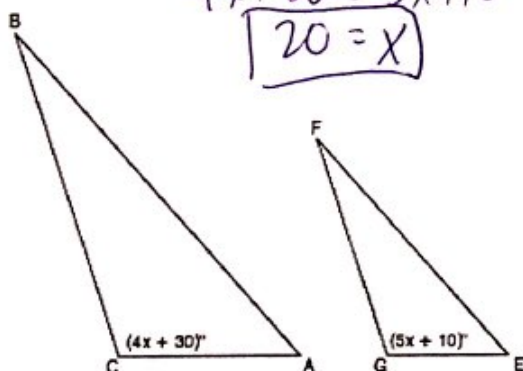
Which reason justifies the conclusion that $\triangle PRT \sim \triangle SRQ$?

- a. AA
- b. ASA
- c. SAS
- d. SSS

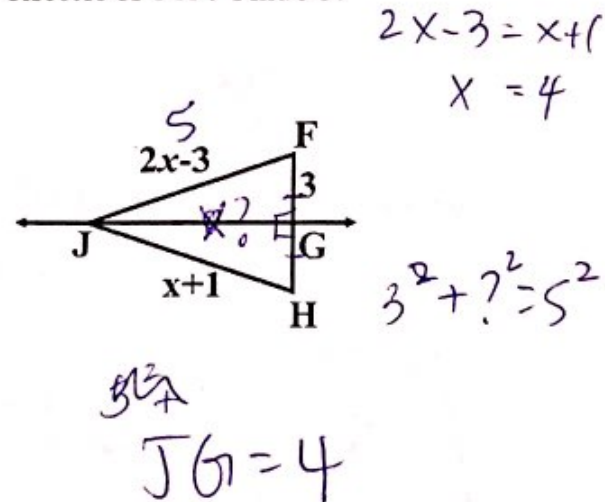
14. A transversal intersects two lines. Which condition would always make the two lines parallel?
- a. Vertical angles are congruent.
 - b. Alternate interior angles are congruent.
 - c. Corresponding angles are supplementary.
 - d. Same-side interior angles are complementary.

Short Answer - Show ALL work to receive full credit.

15. In the diagram below, $\triangle ABC \sim \triangle EFG$, $m\angle C = 4x + 30$, and $m\angle G = 5x + 10$. Determine the value of x .



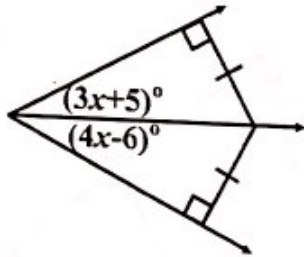
16. In the diagram, \overline{JG} is the perpendicular bisector of \overline{FH} . Find JG .



Name: _____

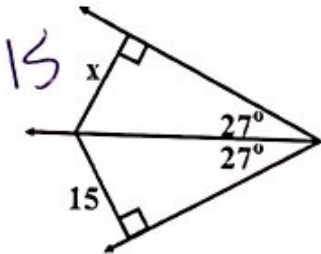
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17. Find the value of x in the diagrams below.
a.

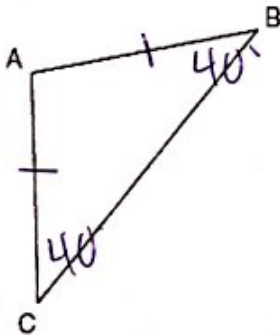


$$3x + 5 = 4x - 6$$

$$11 = x$$

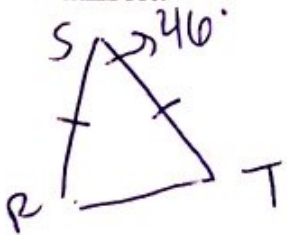


18. In the diagram of $\triangle ABC$ below, $\overline{AB} \cong \overline{AC}$. The measure of $\angle B$ is 40° .



What is the measure of $\angle A$? 100°

19. In $\triangle RST$, $m\angle RST = 46$ and $\overline{RS} \cong \overline{ST}$. Find $m\angle STR$.



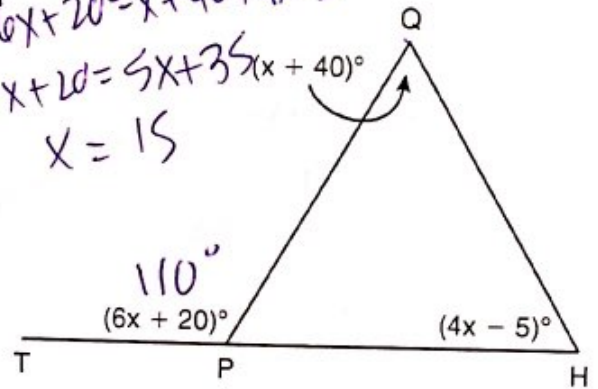
$$67^\circ$$

20. In the diagram below of $\triangle HQP$, side \overline{HP} is extended through P to T , $m\angle QPT = 6x + 20$, $m\angle HQP = x + 40$, and $m\angle PHQ = 4x - 5$. Find $m\angle QPT$.

$$6x + 20 = x + 40 + 4x - 5$$

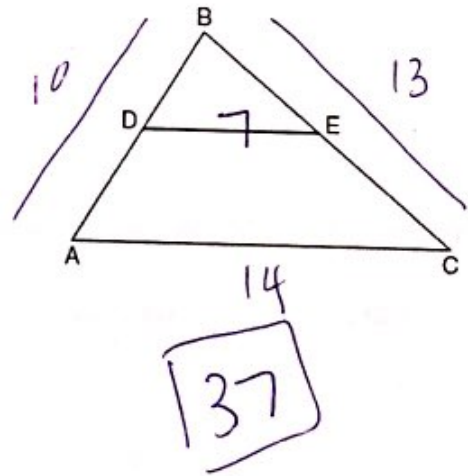
$$6x + 20 = 5x + 35$$

$$x = 15$$

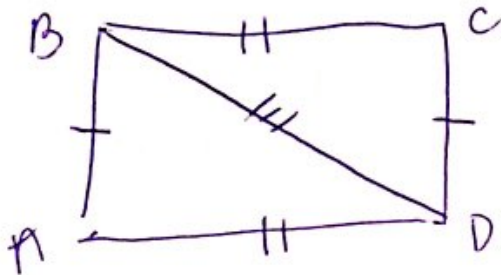


(Not drawn to scale)

21. In the diagram below of $\triangle ABC$, \overline{DE} is a midsegment of $\triangle ABC$, $DE = 7$, $AB = 10$, and $BC = 13$. Find the perimeter of $\triangle ABC$.

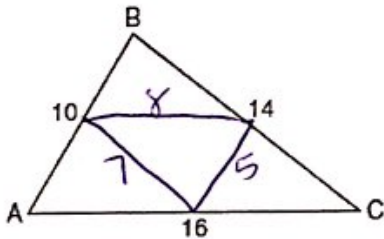


22. Given: Quadrilateral $ABCD$ with $\overline{AB} \cong \overline{CD}$,
 $\overline{AD} \cong \overline{BC}$, and diagonal \overline{BD} is drawn
 Prove: $\angle BDC \cong \angle ABD$



statements	Reasons
1. \rightarrow	1. Given
2. $\overline{BD} \cong \overline{BD}$	2. Reflexive property
3. $\triangle ABD \cong \triangle CDB$	3. SSS
4. $\angle BDC \cong \angle ABD$	4. CPCTC

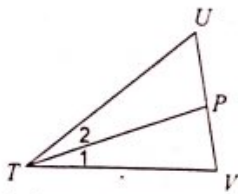
23. In the diagram of $\triangle ABC$ below, $AB = 10$, $BC = 14$, and $AC = 16$. Find the perimeter of the triangle formed by connecting the midpoints of the sides of $\triangle ABC$.



$P = 20$

Each figure shows a triangle with one of its angle bisectors.

- 24) Find x if $m\angle 2 = 3x - 5$ and $m\angle VTU = 4x + 6$.



$$2(3x - 5) = 4x + 6$$

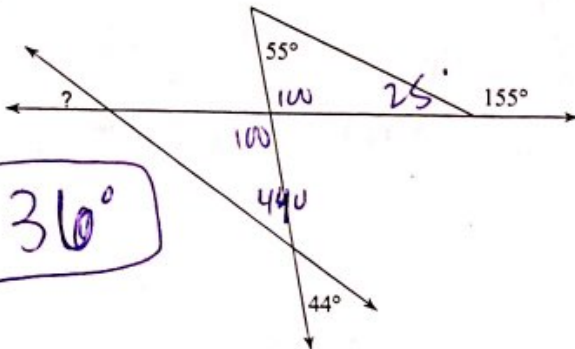
$$6x - 10 = 4x + 6$$

$$2x = 16$$

$$x = 8$$

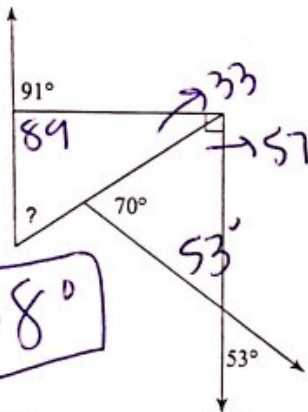
Find the measure of each angle indicated.

- 26)



$$36^\circ$$

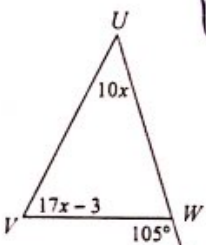
- 27)



$$58^\circ$$

Find the measure of the angle indicated.

- 28) Find $m\angle V$.



$$105 = 10x + 17x - 3$$

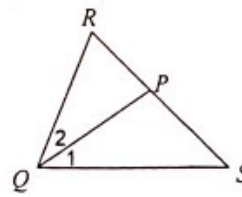
$$108 = 27x$$

$$4 = x$$

$$V = 65^\circ$$

- 25) $m\angle 1 = 4x + 6$ and $m\angle 2 = 3x + 13$.

Find x .

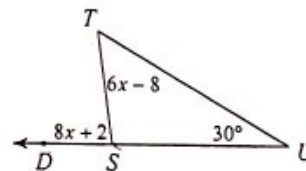


$$4x + 6 = 2x + 13$$

$$2x = 7$$

$$x = 7/2$$

- 29) Find $m\angle DST$.



$$8x + 2 = 6x - 8 + 30$$

$$2x = 20$$

$$x = 10$$

$$\angle DST = 82^\circ$$