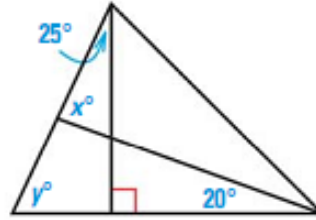


1. Given the triangle below, please solve for  $x$  and  $y$ .

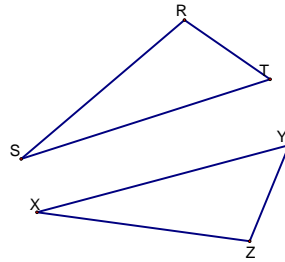


2. Given  $\triangle TSR \cong \triangle YXZ$ ,

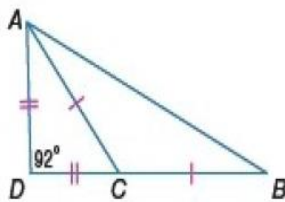
$\angle X \cong$  \_\_\_\_\_

$\angle R \cong$  \_\_\_\_\_

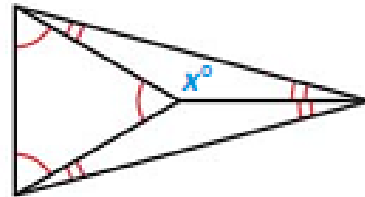
$\angle Y \cong$  \_\_\_\_\_



3. Given the diagram below and  $m\angle ADC = 92^\circ$ , please find  $m\angle DAB$ .

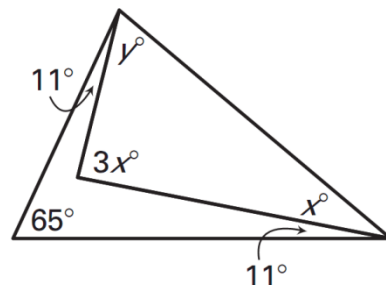


4. Given the diagram below, please solve for  $x$ .



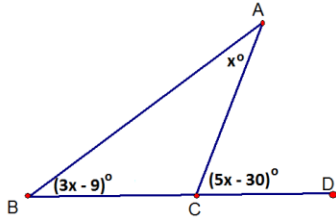
5. The lengths of two legs of an isosceles triangle are  $(3x^2 - 5)$  cm and  $(x^2 + 27)$  cm. The perimeter of the triangle is 150 cm. Please find the length of the base.

6. Given the diagram below, please solve for  $x$  and  $y$ .

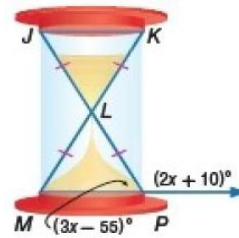


7. In  $\triangle ABC$ , the measures of the angles are  $m\angle A = (3x - 17)^\circ$ ,  $m\angle B = (x + 40)^\circ$  and  $m\angle C = (2x - 5)^\circ$ . Please classify the triangle by its side lengths and angle measures.

8. Given the diagram below, please find  $m\angle ACD$ .

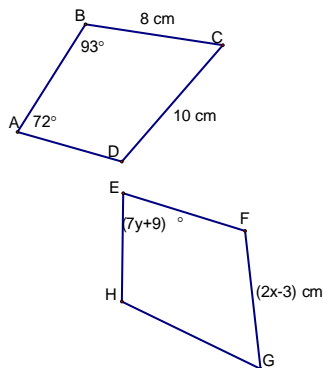


9. Given the diagram below, please find  $m\angle JLK$ .



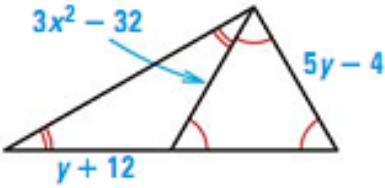
10. In  $\triangle EFG$ ,  $m\angle F = 3(m\angle G)^\circ$  and  $m\angle E = (m\angle F - 30)^\circ$ . Please find the measure of each angle.

11. Given  $ABCD \cong EFGH$ , please find  $x$  and  $y$ .



12. Please classify  $\triangle ABC$  by its sides and determine if the triangle is a right triangle.  $A(2, 3)$ ,  $B(6, 3)$ ,  $C(2, 7)$ .

13. Given the diagram below, please solve for x and y.

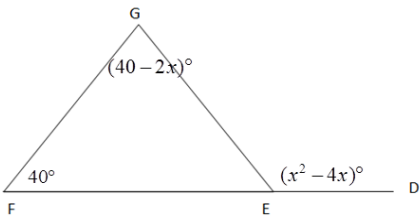


14. State the third congruency that must be given to prove  $\Delta PQR \cong \Delta STU$  using the ASA Congruence Postulate.

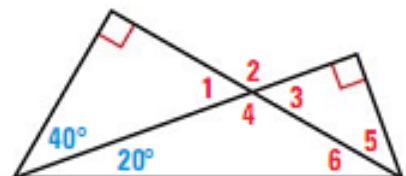
Given:  $\angle R \cong \angle U$ ,  $\angle P \cong \angle S$

15. The lengths of the sides of a triangle are  $3x$ ,  $5x - 12$ , and  $x + 20$ . Please find the values of  $x$  that make the triangle isosceles.

16. Given the diagram below, please find all possible angle measures for  $m\angle GEF$ .



17. Given the diagram below, please find the measures of all of the numbered angles.



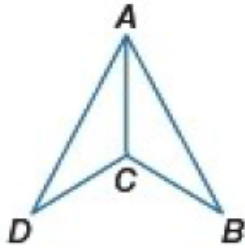
18. Can the triangles be proven congruent based on the given information? If so, state the postulate or theorem you would use to prove congruency.

$$m\angle ADC = 35^\circ$$

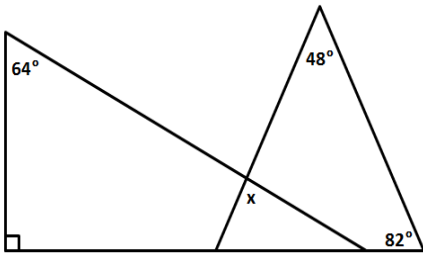
$$m\angle ABC = 35^\circ$$

$$m\angle DAC = 26^\circ$$

$$m\angle BAC = 26^\circ$$



19. Given the diagram below, please solve for x.



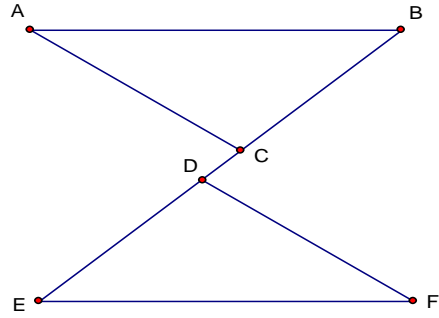
20. The measures of the angles of a triangle are  $(2\sqrt{2x})^\circ$ ,  $(2\sqrt{2x})^\circ$ , and  $(5\sqrt{2x})^\circ$ . Please find the measure of each angle.

21. Given that  $\angle P \cong \angle S$  and  $\overline{PQ} \cong \overline{ST}$ , state the third congruency that must be given to prove  $\triangle PQR \cong \triangle STU$  using the AAS Postulate.

22.

Given :  $\overline{AB} \parallel \overline{EF}$ ,  $\overline{AB} \cong \overline{EF}$ ,  $\overline{BC} \cong \overline{DE}$

Prove :  $\triangle ABC \cong \triangle FED$

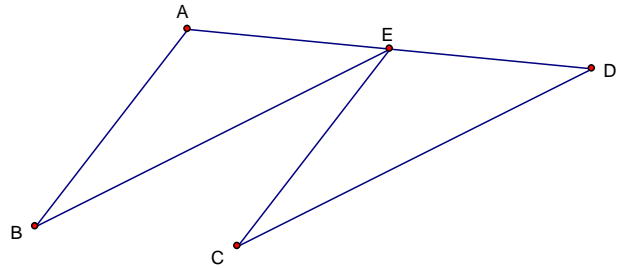


Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.

23.

Given : E is the midpoint of  $\overline{AD}$ ,  $\overline{EB} \parallel \overline{DC}$ ,  $\overline{AB} \parallel \overline{EC}$

Prove :  $\triangle ABE \cong \triangle ECD$

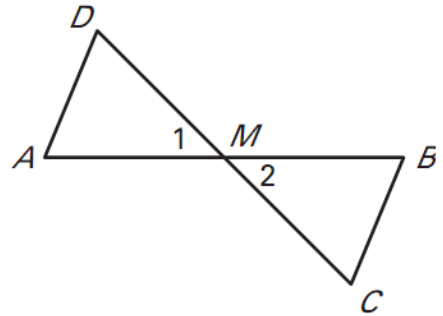


Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.

24.

Given:  $\overline{AB}$  and  $\overline{CD}$  bisect each other at point M

Prove :  $\overline{AD} \parallel \overline{BC}$



Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.
8.	8.

**Answer Key**

Question 1 :  $x = 85, y = 65$

Question 2 :  $\angle S, \angle Z, \angle T$

Question 3 :  $66^\circ$

Question 4 :  $x = 150$

Question 5 : 64 cm

Question 6 :  $x = 29, y = 64$

Question 7 :  $x = 27$ , Acute Scalene

Question 8 :  $x = 21, 75^\circ$

Question 9 :  $x = 45, 20^\circ$

Question 10 :  $30^\circ, 60^\circ, 90^\circ$

Question 11 :  $x = 5.5, y = 9$

Question 12 : Right Isosceles

Question 13 :  $x = -4$  or  $4, y = 4$

Question 14 :  $\overline{PR} \cong \overline{SU}$

Question 15 :  $x = 6, 8, 10$

Question 16 :  $x = -8, 84^\circ, x = 10, 120^\circ$

Question 17 :  $50^\circ, 130^\circ, 50^\circ, 130^\circ, 40^\circ, 30^\circ$

Question 18 : AAS

Question 19 :  $x = 104$

Question 20 :  $40^\circ, 40^\circ, 100^\circ$

Question 21 :  $\angle R \cong \angle U$

Questions 22 – 24: Check solutions on my website