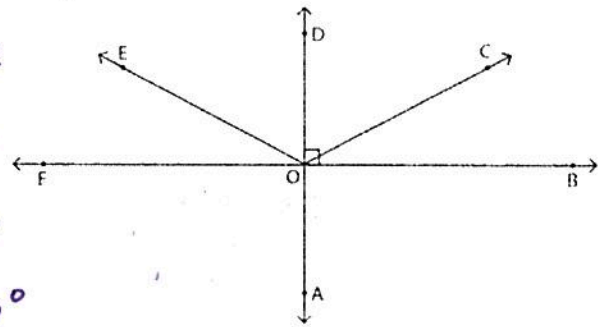


Some important terms/concepts to know/remember:

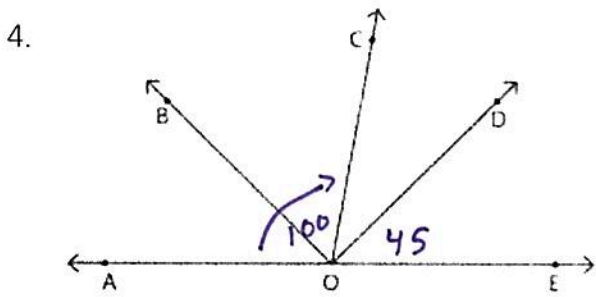
- Complementary
- Supplementary
- Alternate Interior Angles
- Alternate Exterior Angles
- Corresponding Angles
- Same-side Interior Angles
- Parallel Lines and Transversals
- Auxiliary Lines
- Acute, Obtuse, Right, Scalene, Isosceles, Equilateral Triangles
- Exterior Angle Theorem
- Isosceles Triangle Theorem
- Angle-Side Relationships
- Triangle Inequality Theorem

1. Identify the type of each angle (acute, right, obtuse, straight)

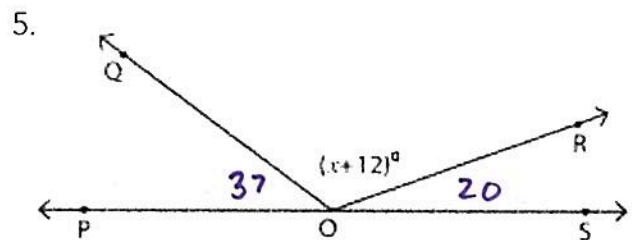
- a) $\angle BOA =$ right b) $\angle COF =$ obtuse
 c) $\angle FOE =$ acute d) $\angle AOC =$ obtuse
 e) $\angle COD =$ acute f) $\angle BOF =$ straight



2. What is the complement of a 40 degree angle? 50°
 3. What is the supplement of a 120 degree angle? 60°



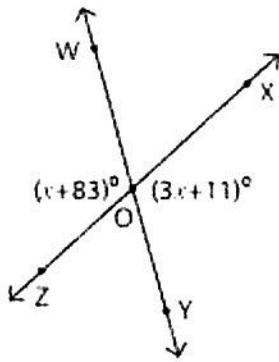
$\angle DOE = 45^\circ$
 $\angle AOC = 100^\circ$
 $\angle COD =$ 35°



$\angle POQ = 37^\circ$ $x =$ 111
 $\angle ROS = 20^\circ$ $\angle QOR =$ 123

$37 + x + 12 + 20 = 180$
 $x + 69 = 180$
 $x = 111$

6.



$$x = \underline{36}$$

$$\angle XOY = \underline{119}$$

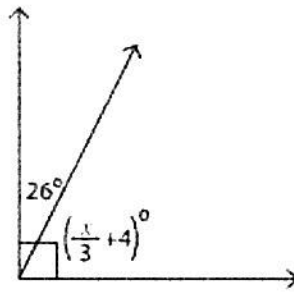
$$\angle ZOY = \underline{61}$$

$$x + 83 = 3x + 11$$

$$72 = 2x$$

$$x = 36$$

7.



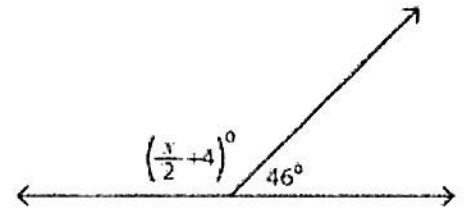
$$x = \underline{180}$$

$$26 + \frac{x}{3} + 4 = 90$$

$$30 + \frac{x}{3} = 90$$

$$\frac{x}{3} = 60$$

8.



$$x = \underline{260}$$

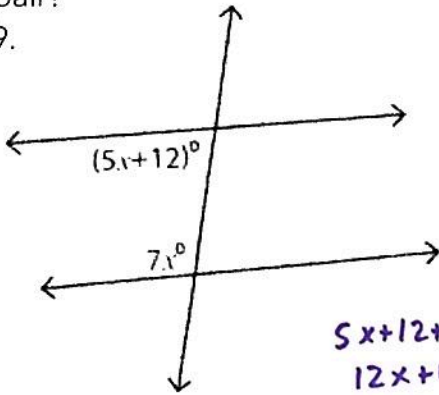
$$\frac{x}{2} + 4 + 46 = 180$$

$$\frac{x}{2} + 50 = 180$$

$$\frac{x}{2} = 130 \quad x = 260$$

For questions 9-13, two parallel lines are cut by a transversal. What is the value of x and the angle pair?

9.



$$x = \underline{14}$$

$$5x + 12 + 7x = 180$$

$$12x + 12 = 180$$

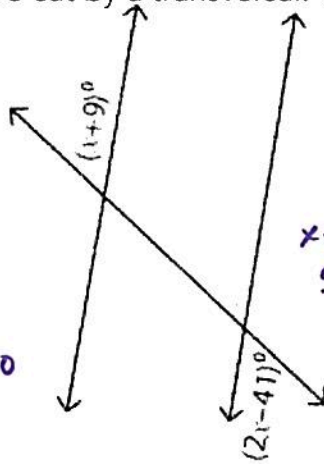
$$12x = 168$$

$$x = 14$$

Angle Pair:

82 and 98

10.



$$x = \underline{50}$$

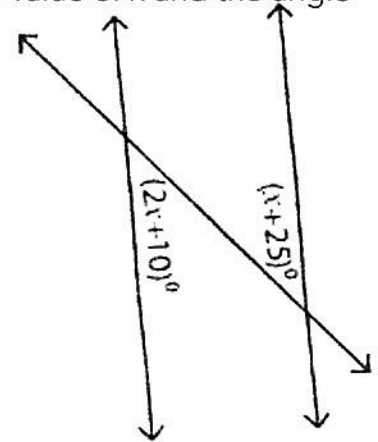
$$x + 9 = 2x - 41$$

$$50 = x$$

Angle Pair:

59 and 59

11.



$$x = \underline{15}$$

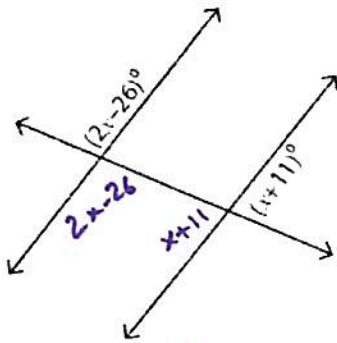
$$2x + 10 = x + 25$$

$$x = 15$$

Angle Pair:

40 and 40

12.



$$x = \underline{65}$$

$$2x - 26 + x + 11 = 180$$

$$3x - 15 = 180$$

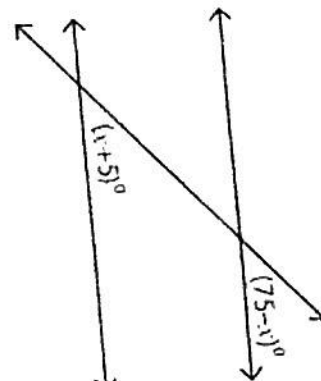
$$3x = 195$$

$$x = 65$$

Angle Pair:

104 and 76

13.



$$x = \underline{35}$$

$$x + 5 = 75 - x$$

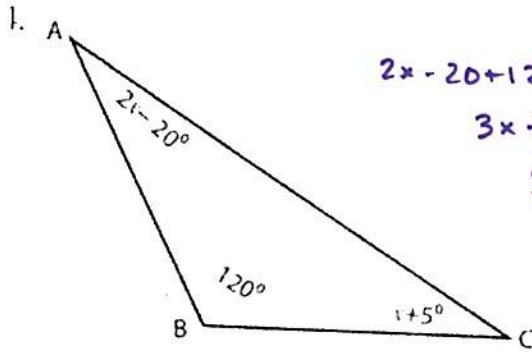
$$2x = 70$$

$$x = 35$$

Angle Pair:

40 and 40

Find the missing values in each triangle:



$$2x - 20 + 120 + x + 5 = 180$$

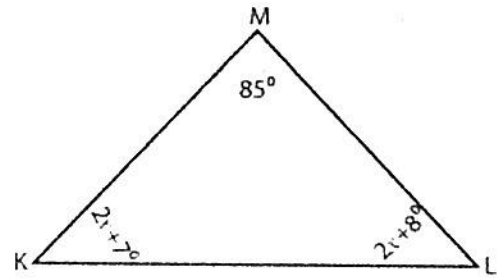
$$3x + 105 = 180$$

$$3x = 75$$

$$x = 25$$

$x = \underline{25}$

15.



$$85 + 2x + 7 + 2x + 8 = 180$$

$$4x + 100 = 180$$

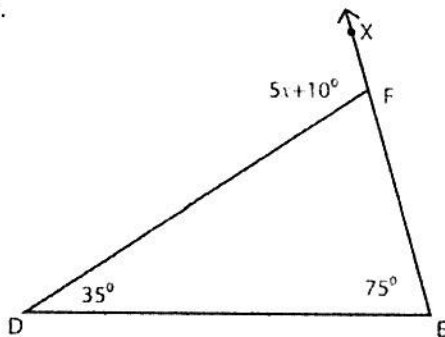
$$4x = 80$$

$$x = 20$$

$x = \underline{20}$

$\angle K = \underline{47^\circ}$; $\angle L = \underline{48^\circ}$

16.



$$5x + 10 = 35 + 75$$

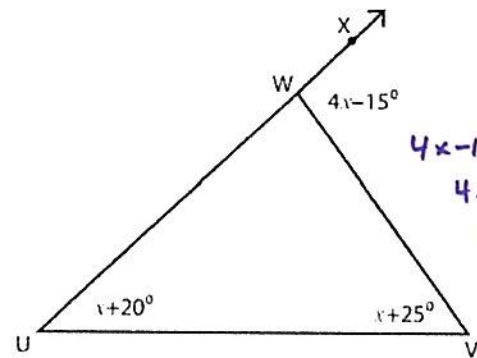
$$5x + 10 = 110$$

$$5x = 100$$

$$x = 20$$

$\angle DFX = \underline{110}$; $x = \underline{20}$

17.



$$4x - 15 = x + 20 + x + 25$$

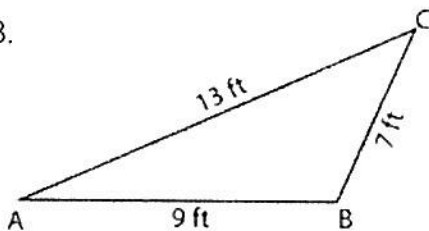
$$4x - 15 = 2x + 45$$

$$2x = 60$$

$$x = 30$$

$x = \underline{30}$; $\angle VWX = \underline{105^\circ}$

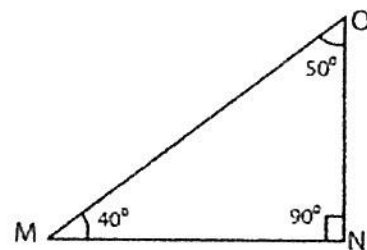
18.



Largest angle = $\angle B$

Smallest angle = $\angle A$

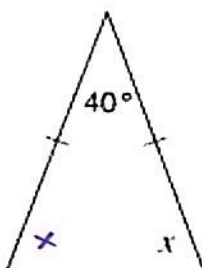
19.



Longest side = \overline{MO}

Shortest side = \overline{ON}

20. Find the value of x:



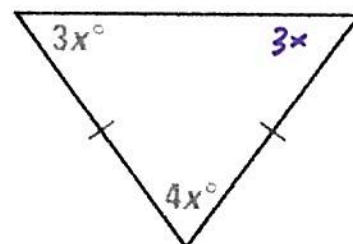
$$x + x + 40 = 180$$

$$2x + 40 = 180$$

$$2x = 140$$

$$x = 70$$

21. Find the value of x:



$$3x + 3x + 4x = 180$$

$$10x = 180$$

$$x = 18$$

22. Identify whether the triangle is possible or not possible given the side measures

- a) $\{2, 4, 4\}$ possible b) $\{2, 4, 6\}$ not possible
c) $\{3, 7, 11\}$ not possible d) $\{5, 5, 5\}$ possible

23. In $\triangle ABC$, $m\angle A = 3x + 1$, $m\angle B = 4x - 17$, and $m\angle C = 5x - 20$. Which type of triangle is ABC?

- 1) right 2) scalene 3) isosceles 4) equilateral

$$3x + 1 + 4x - 17 + 5x - 20 = 180$$

$$12x - 36 = 180$$

$$12x = 216$$

$$x = 18$$

$$\angle A = 55$$

$$\angle B = 55$$

$$\angle C = 70$$

24. In $\triangle ABC$, $m\angle A = x$, $m\angle B = 2x + 2$, and $m\angle C = 3x + 4$. Which type of triangle is ABC?

- 1) right 2) scalene 3) isosceles 4) equilateral

$$x + 2x + 2 + 3x + 4 = 180$$

$$6x + 6 = 180$$

$$6x = 174$$

$$x = 29$$

$$\angle A = 29$$

$$\angle B = 60$$

$$\angle C = 91$$

25. The measures of the angles of a triangle are in the ratio 2:3:4. In degrees, the measure of the largest angle of the triangle is

- 1) 20 2) 40 3) 80 4) 100

$$2x + 3x + 4x = 180$$

$$9x = 180$$

$$x = 20$$

$$40^\circ, 60^\circ, 80^\circ$$

What kind of triangle is it? Scalene

26. In right triangle ABC, $m\angle C = 3y - 10$, $m\angle B = y + 40$, and $m\angle A = 90$. What type of right triangle is triangle ABC?

- 1) scalene 2) isosceles 3) equilateral 4) obtuse

$$3y - 10 + y + 40 + 90 = 180$$

$$4y + 120 = 180$$

$$4y = 60$$

$$y = 15$$

$$\angle A = 90$$

$$\angle B = 55$$

$$\angle C = 35$$