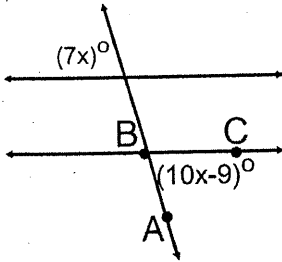


7. Find x and $m\angle ABC$. Show all work and explain your reasoning.

a)



Parallel Lines \Rightarrow Alt. Ext. Angles \cong

$$7x = 10x - 9$$

$$9 = 3x$$

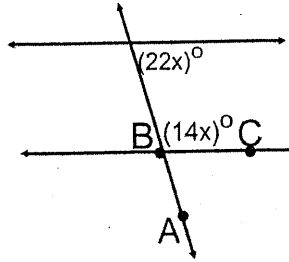
$$\boxed{3 = x}$$

$$m\angle ABC = 10x - 9$$

$$= 10(3) - 9$$

$$\boxed{m\angle ABC = 21^\circ}$$

b)



Parallel Lines \Rightarrow Same-Side Int. \angle s Supplementary

$$22x + 14x = 180$$

$$36x = 180$$

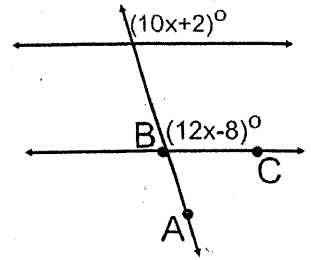
$$\boxed{x = 5}$$

$$m\angle ABC = 22x$$

$$= 22(5)$$

$$\boxed{m\angle ABC = 110^\circ}$$

c)



Parallel Lines \Rightarrow Corresponding Angles are Congruent

$$10x + 2 = 12x - 8$$

$$10 = 2x$$

$$\boxed{5 = x}$$

$$m\angle ABC = 180 - (12x - 8)$$

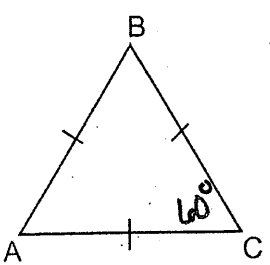
$$= 180 - (12 \cdot 5 - 8)$$

$$= 180 - 52$$

$$\boxed{m\angle ABC = 128^\circ}$$

8. What type of triangle is shown? Describe everything you know about this type of triangle? Answer the question.

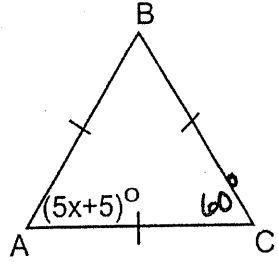
a) Find $m\angle A = 60^\circ$



Equilateral
Equiangular
All angles \cong
Each angle measures 60°

$$\boxed{m\angle A = 60^\circ}$$

b) Find $x = 11$

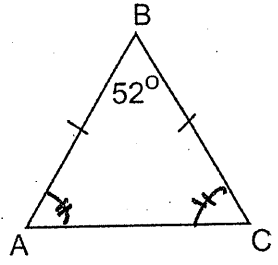


$$5x + 5 = 60$$

$$5x = 55$$

$$\boxed{x = 11}$$

c) Find $m\angle A = 64^\circ$

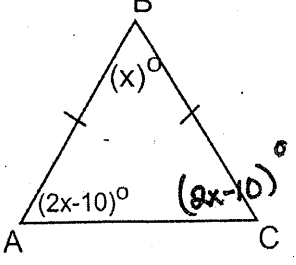


Isosceles Δ . Two \cong sides called legs. The angles opposite the legs are congruent

$$180 - 52 = 128$$

$$128 \div 2 = 64$$

d) Find $m\angle A = 70^\circ$



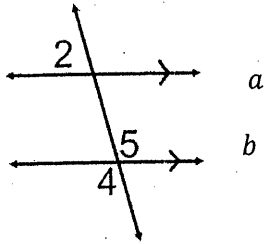
$$2x - 10 + 2x - 10 + x = 180$$

$$5x - 20 = 180$$

$$5x = 200 \quad x = 40$$

9. Given: $\angle 2$ and $\angle 5$ are supplementary

Prove: $a \parallel b$



1. $\angle 2$ and $\angle 5$ are supplementary 1. Given
2. $m\angle 2 + m\angle 5 = 180^\circ$ 2. Supp. \angle s \Rightarrow sum of 180°
3. $\angle 5$ and $\angle 4$ are vertical \angle s 3. Shown in Diagram
4. $\angle 5 \cong \angle 4$ 4. Vertical \angle s are \cong
5. $m\angle 5 = m\angle 4$ 5. $\cong \angle$ s \Rightarrow = measures
6. $m\angle 2 + m\angle 4 = 180^\circ$ 6. Substitution prop. =
7. $\angle 2$ and $\angle 4$ are suppl. 7. Sum of $180^\circ \Rightarrow$ supplementary \angle s
8. $a \parallel b$ 8. same side ext. \angle s suppl. \Rightarrow parallel lines