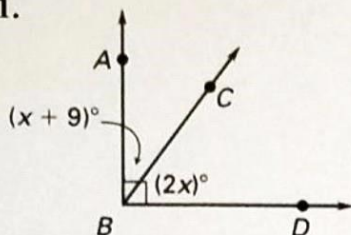


**SHOW ALL WORK!**

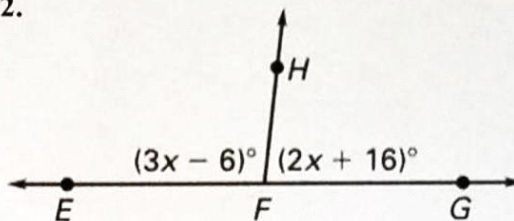
Find the  $m\angle ABC$  and  $m\angle CBD$ .

1.



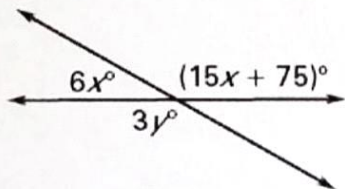
$$\begin{aligned} x + 9 + 2x &= 90 \\ 3x &= 81 \\ x &= 27 \\ m\angle ABC &= 27 + 9 = 36^\circ \\ m\angle CBD &= 2(27) = 54^\circ \end{aligned}$$

2.



$$\begin{aligned} 3x - 6 + 2x + 16 &= 180 \\ 5x + 10 &= 180 \\ 5x &= 170 \\ x &= 34 \\ m\angle EFH &= 3(34) - 6 = 96^\circ \\ m\angle HFG &= 2(34) + 16 = 84^\circ \end{aligned}$$

3. Find  $x$  and  $y$ .



$$\begin{aligned} 6x + 15x + 75 &= 180 \\ 21x &= 105 \\ x &= 5 \end{aligned}$$

$$\begin{aligned} 6(5) + 3y &= 180 \\ 30 + 3y &= 180 \\ 3y &= 150 \\ y &= 50 \end{aligned}$$

Use the diagram to determine whether the angles are *vertical*, *linear pairs*, or neither.

4.  $\angle 4$  and  $\angle 3$

neither

5.  $\angle 1$  and  $\angle 5$

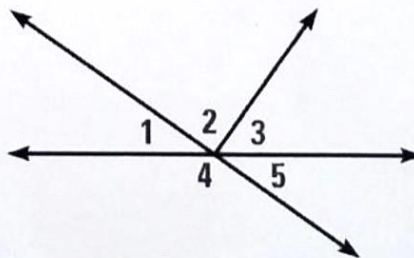
vertical

6.  $\angle 2$  and  $\angle 5$

neither

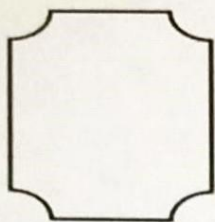
7.  $\angle 4$  and  $\angle 5$

linear pair



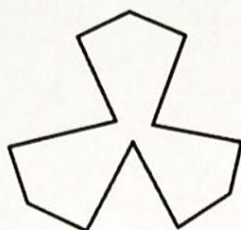
Tell whether the figure is a polygon. If it is not, explain why. If it is a polygon, tell whether it is *convex* or *concave*.

8.



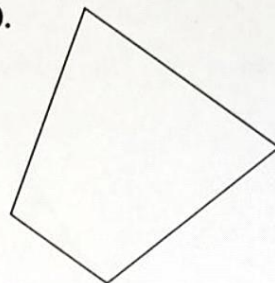
Not a polygon  
→ it's curved

9.



Concave Polygon

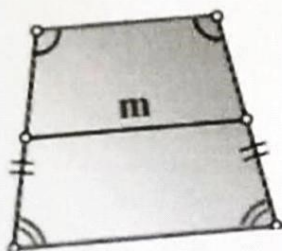
10.



Convex Polygon

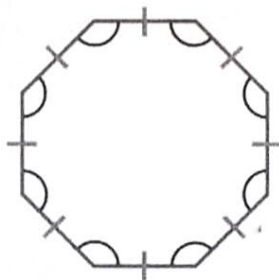
Classify the polygon by the number of sides. Tell whether the polygon is *equilateral*, *equiangular*, or *regular*. Explain your reasoning.

11.



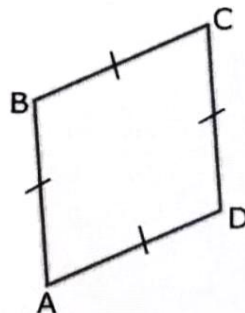
Quadrilateral

12.



Regular Octagon  
→ All sides + ang's  $\cong$

13.



Equilateral Quadrilateral  
→ all sides  $\cong$

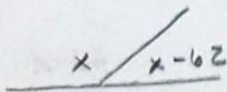
14. The lengths (in feet) of two sides of a **regular** quadrilateral are represented by the expressions  $8x - 6$  and  $4x + 22$ . Find the length of a side of the quadrilateral.

$$\begin{aligned} 8x - 6 &= 4x + 22 \\ 4x &= 28 \\ x &= 7 \end{aligned}$$

$$\begin{aligned} 4(7) + 22 &= 50 \\ 8(7) - 6 &= 50 \end{aligned}$$

Each side is 50 ft

15. The measure of one angle is  $62^\circ$  less than the measure of its **supplement**. Find the measure of each angle.



$$x + x - 62 = 180$$

$$2x = 242$$

$$x = 121^\circ$$

$$121 - 62 = 59^\circ$$