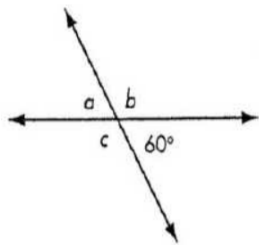


Find the angle measure for each letter.

1.

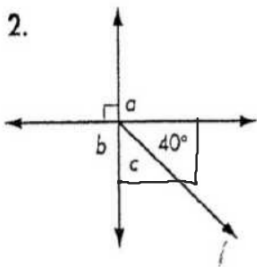


$$a = 60^\circ$$

$$b = 120^\circ$$

$$c = 120^\circ$$

2.

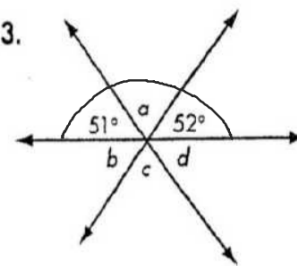


$$a = 90^\circ$$

$$b = 90^\circ$$

$$c = 50^\circ$$

3.



$$a = 77^\circ$$

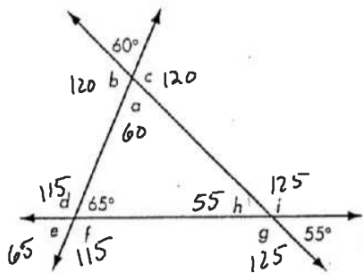
$$b = 52^\circ$$

$$c = 77^\circ$$

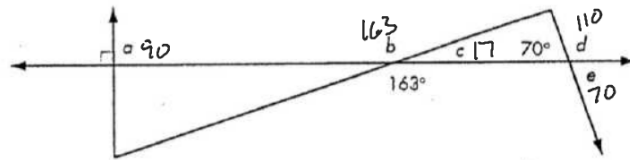
$$d = 51^\circ$$

Find the angle measure for each letter.

4.

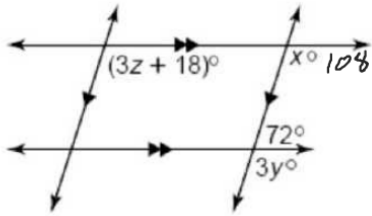


5.



Find the values of  $x$ ,  $y$  and  $z$  in each figure.

11.



$$x + 72 = 180 \quad 3y = 108$$

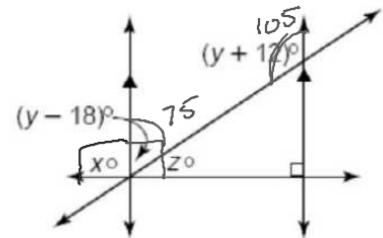
$$x = 108 \quad y = 36$$

$$3z + 18 = 108$$

$$3z = 90$$

$$z = 30$$

12.



$$x = 90^\circ$$

$$y - 18 + y + 12 = 180$$

$$2y - 6 = 180$$

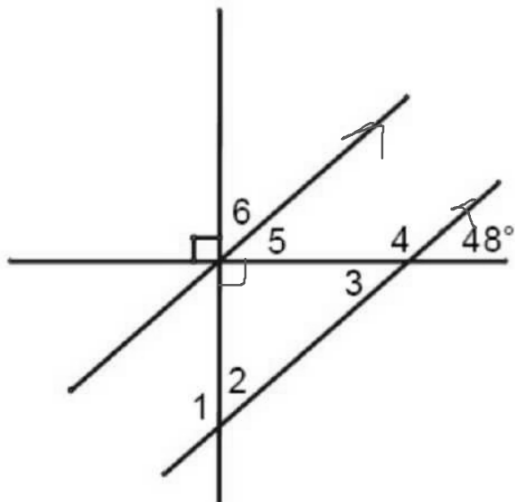
$$2y = 186$$

$$y = 93$$

$$z = 15^\circ$$

2

2. Given the information in the sketch that follows, find the measure of all angles.



1.  $m\angle 1 = \underline{138}$

2.  $m\angle 2 = \underline{42}$

3.  $m\angle 3 = \underline{48}$

4.  $m\angle 4 = \underline{132}$

5.  $m\angle 5 = \underline{48}$

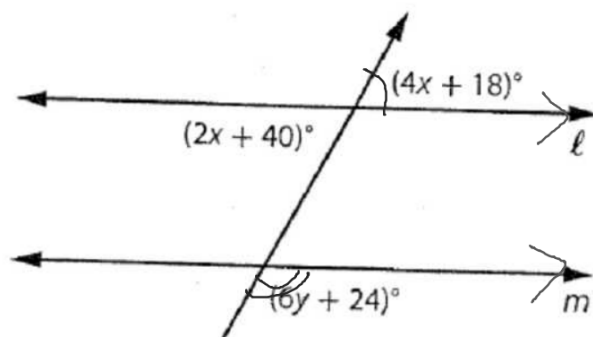
6.  $m\angle 6 = \underline{42}$

6. If lines  $l$  and  $m$  are parallel, find the values of  $x$  and  $y$  in the diagram to the right.

$$4x + 18 = 2x + 40$$

$$2x = 22$$

$$x = 11$$



$$4x + 18 + 6y + 24 = 180$$

$$44 + 18 + 6y + 24 = 180$$

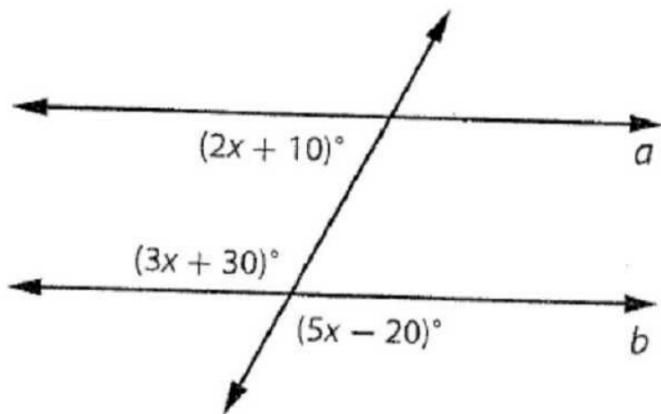
$$6y + 86 = 180$$

$$6y = 94$$

$$y = 15\frac{2}{3}$$

$$\begin{array}{r} 180 \\ - 86 \\ \hline 94 \end{array}$$

b. Are lines  $a$  and  $b$  parallel? Explain your reasoning.



$$\begin{aligned}2x + 10 + 3x + 30 &= 180 \\2(25) + 10 + 3(25) + 30 \\50 + 10 + 75 + 30 \\165 &\neq 180\end{aligned}$$

$$2x + 10 + 3x + 30 = 180$$

$$5x + 40 = 180$$

$$5x = 140$$

$$x = 28$$

$$3(28) + 30 \stackrel{?}{=} 5(28) - 20$$

$$114 \neq 120$$

---

$$3x + 30 = 5x - 20$$

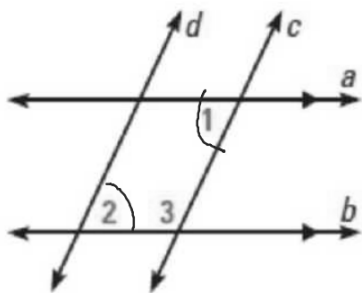
$$30 = 2x - 20$$

$$50 = 2x$$

$$x = 25$$

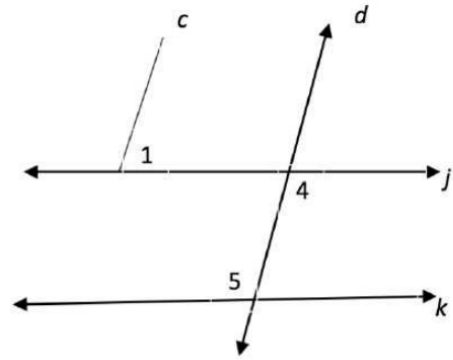
**GIVEN**  $\triangleright a \parallel b, \angle 1 \cong \angle 2$

**PROVE**  $\triangleright c \parallel d$



Statement	Reason
1) $a \parallel b, \angle 1 \cong \angle 2$	1) Given
2) $\angle 1 + \angle 3$ are Supplementary	2) Same-Side Interior $\angle$ 's.
3) $m\angle 1 + m\angle 3 = 180$	3) Def of supp $\angle$ 's
4) $m\angle 2 + m\angle 3 = 180$	4) Substitution prop.
5) $\angle 2 + \angle 3$ are Supp	5) Def of Supp $\angle$ 's
6) $c \parallel d$	6) If the same-side interior $\angle$ 's are supp then lines are $\parallel$ .

5. Given:  $\angle 1$  and  $\angle 5$  are Supplementary  
 $\angle 1$  and  $\angle 4$  are Supplementary



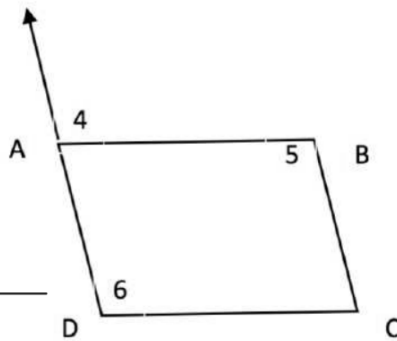
Prove:  $j \parallel k$

Statement	Reason
1) $\angle 1$ and $\angle 5$ are Supp $\angle 1$ and $\angle 4$ are Sup	1) Given
2) $m\angle 1 + m\angle 5 = 180$ $m\angle 1 + m\angle 4 = 180$	2) Def of Supp.
3) $m\angle 1 + m\angle 5 = m\angle 1 + m\angle 4$	3) Substitution prop
4) $m\angle 4 = m\angle 5$	4) Subtraction prop
5) $j \parallel k$	5) If Alternate Interior $\angle$ 's are $\cong$ then lines are $\parallel$ .



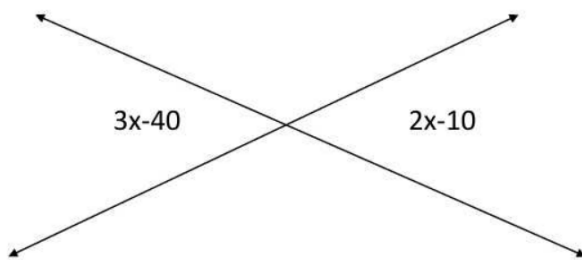
4. Given:  $\angle 5 \cong \angle 6$ ;  $\angle 6 \cong \angle 4$

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



Statement	Reason
1) $\angle 5 \cong \angle 6, \angle 6 \cong \angle 4$	1) Given
2) $\angle 5 \cong \angle 4$	2) Substitution prop.
3) $\overline{AD} \parallel \overline{BC}$	3) If Alternate Interior Angles are $\cong$ then lines are $\parallel$ .

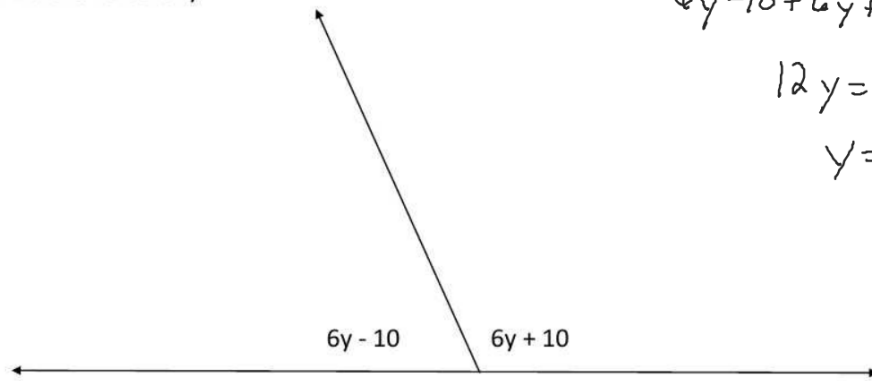
Find the value of x.



$$3x-40 = 2x-10$$

$$x = 30$$

Find the value of  $y$ .



$$6y - 10 + 6y + 10 = 180$$

$$12y = 180$$

$$y = 15$$

