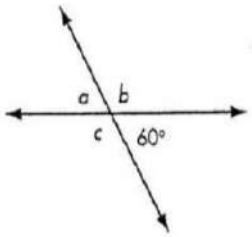
Find the angle measure for each letter.

1.

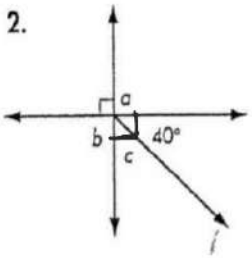


$a = 60^\circ$

$b = 120^\circ$

$c = 120^\circ$

2.

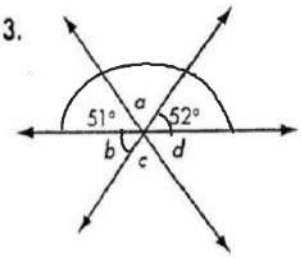


$a = 90^\circ$

$b = 90^\circ$

$c = 50^\circ$

3.



$a = 77^\circ$

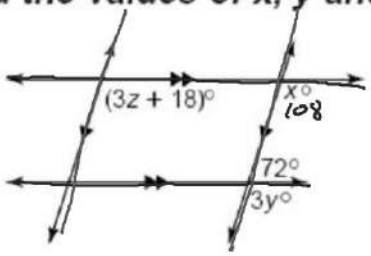
$b = 52^\circ$

$c = 77^\circ$

$d = 51^\circ$

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

11.



$X+72=180$

$X=108$

$3z+18=108$

$3z=90$

$z=30$

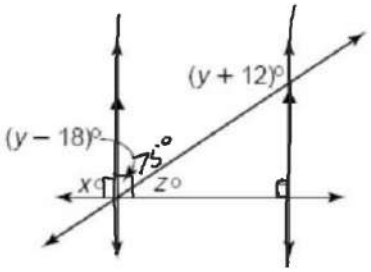
$3y=108$

$y=36$

12.

$X=90^\circ$

$z=15^\circ$



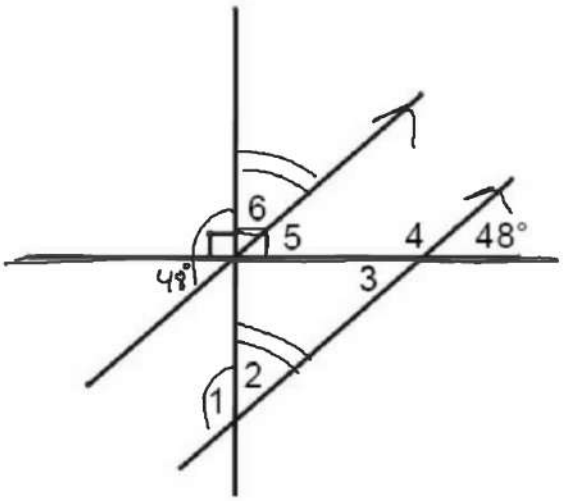
$y-18+y+12=180$

$2y-6=180$

$2y=186$

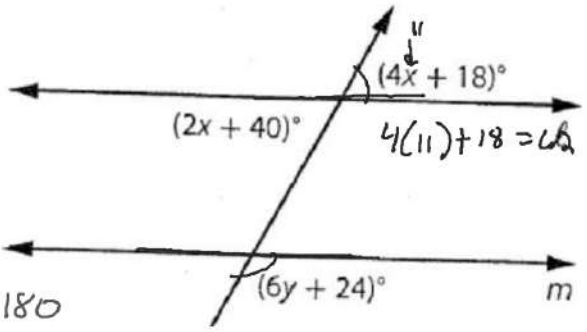
$y=93$

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



1. m<1 = 138°
2. m<2 = 42
3. m<3 = 48
4. m<4 = 132
5. m<5 = 48
6. m<6 = 42

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



$4x+18 = 2x+40$

$2x+18 = 40$

$2x = 22$

$x = 11$

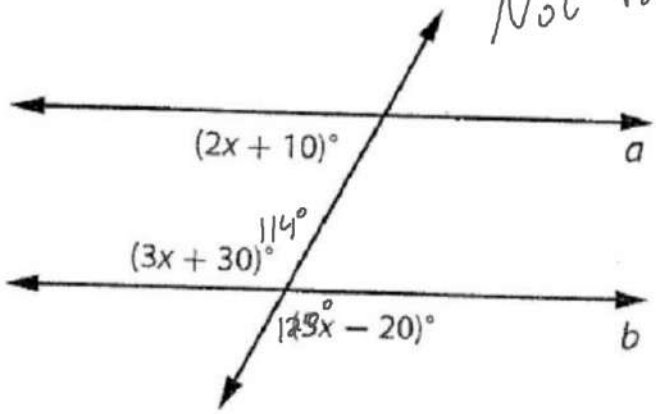
$6y+24+62=180$

$6y+86=180$

$6y = 94$

$y = 15.\overline{6}$

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



Not Parallel

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

$5x+40=180$

$5x=140$

$x=28$

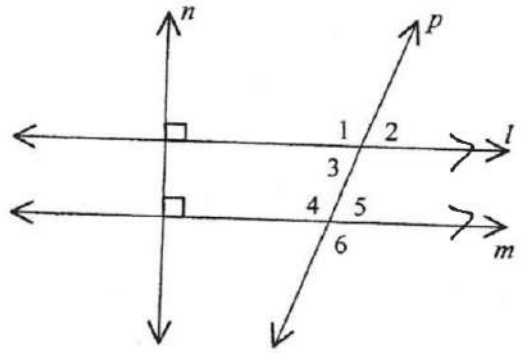
$3x+30=5x-20$

$50=2x$

$x=25$

Given: $l \perp n$, $m \perp n$

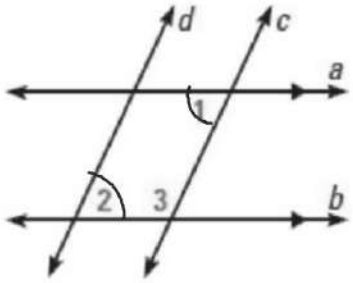
Prove: $\angle 3$ and $\angle 6$ are supplementary



Statement	Reason
1) $l \perp n, m \perp n$	1) Given
2) $l \parallel m$	2) Quel ⊥ line theorem
3) $\angle 3 + \angle 4$ are supp	3) Same-side Int ∠'s
4) $m\angle 3 + m\angle 4 = 180$	4) Def Supp ∠'s
5) $\angle 4 \cong \angle 6$	5) Vertical ∠ are ≅
6) $m\angle 4 = m\angle 6$	6) Def ≅ ∠'s
7) $m\angle 3 + m\angle 6 = 180$	7) Sub prop.
8) $\angle 3 + \angle 6$ are Supp	8) Def Supp ∠'s

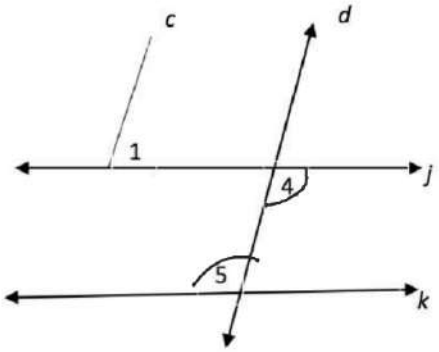
GIVEN ▶ $a \parallel b, \angle 1 \cong \angle 2$

PROVE ▶ $c \parallel d$



Statement	Reason
1) $a \parallel b$ $\angle 1 \cong \angle 2$	1) Given
2) $m\angle 1 + m\angle 3 = 180$	2) Same-Side Int $\angle$'s.
3) $m\angle 1 = m\angle 2$	3) Def $\cong \angle$'s
4) $m\angle 2 + m\angle 3 = 180$	4) Sub prop
5) $c \parallel d$	5) Converse same side Int $\angle$'s.

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

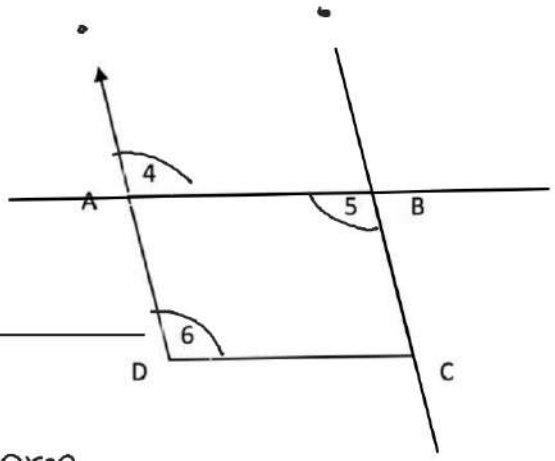


Prove: $j \parallel k$

Statement	Reason
1) $\angle 1 + \angle 5$ are Supp $\angle 1 + \angle 4$ are Supp	1) Given
2) $\angle 4 \cong \angle 5$	2) Congruent Supp theorem
3) $j \parallel k$	3) Converse Alt Interior $\angle$ theorem

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

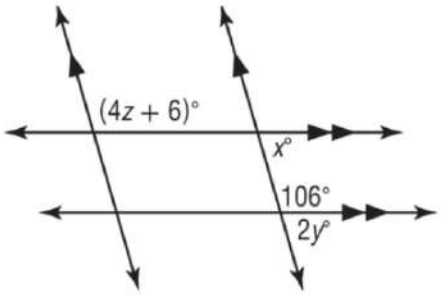
Prove: $\overline{AD} \parallel \overline{BC}$



Statement	Reason
1) $\angle 5 \cong \angle 6$, $\angle 6 \cong \angle 4$	1) Given
2) $\angle 5 \cong \angle 4$	2) Sub prop.
3) $\overline{AD} \parallel \overline{BC}$	3) Converse Alt Interior $\angle$'s

7. _____

Find the value of the variable(s) in each figure. Explain your reasoning.



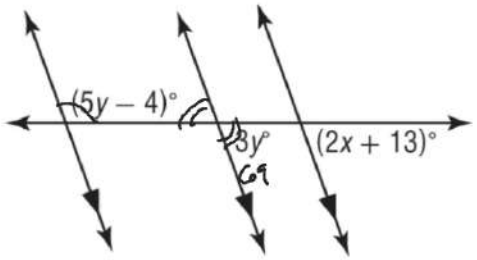
8. Find the value of the variable(s) in each figure. Explain your reasoning.

$3y+5y-4=180$

$8y-4=180$

$8y=184$

$y=23$



$2x+13=69$

$2x=56$

$x=28$

8. Given: $\overleftrightarrow{AB} \parallel \overleftrightarrow{EC}$; $\overleftrightarrow{BC} \parallel \overleftrightarrow{EF}$

Prove: $\angle 7 \cong \angle 4$

Statements	Reasons