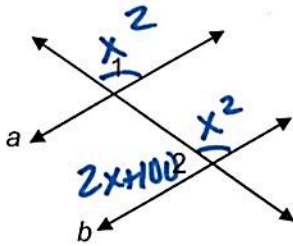


1. $m\angle 1 = x^2$ and $m\angle 2 = 2x + 100$.
If $a \parallel b$, find $m\angle 1$.



$$x^2 + 2x + 100 = 180$$

$$-180$$

$$x^2 + 2x - 80 = 0$$

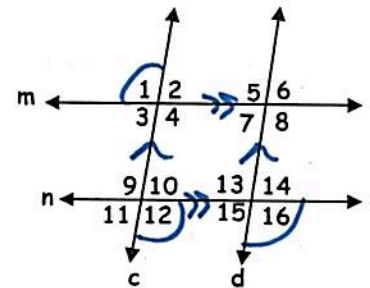
$$(x+10)(x-8)$$

$$x = -10, 8$$

$$m\angle 1 = x^2$$

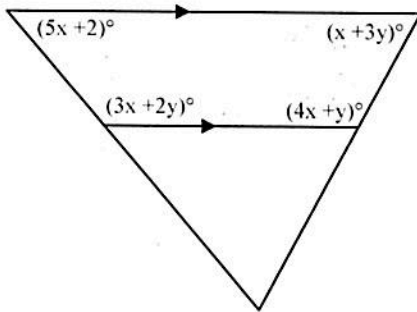
$$m\angle 1 = 100 \text{ or } 64$$

2. GIVEN: $c \parallel d$; $m \parallel n$
PROVE: $\angle 1 \cong \angle 16$



- | | |
|---|-------------------------------|
| 1. <u>$c \parallel d, m \parallel n$</u> | 1. <u>Given</u> |
| 2. <u>$\angle 1 \cong \angle 12$</u> | 2. <u>Alt. Ext. & Thm</u> |
| 3. <u>$\angle 12 \cong \angle 16$</u> | 3. <u>Corr. & Post.</u> |
| 4. <u>$\angle 1 \cong \angle 16$</u> | 4. <u>Transitive</u> |

3. Find the values of x and y . All expressions are representing angles.



$$5x + 2 + 3x + 2y = 180$$

$$8x + 2y = 178$$

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

$$5x + 4y = 180$$

$$-2(8x + 2y = 178)$$

$$-16x - 4y = -356$$

$$-11x = -176$$

$$x = 16$$

$$5(16) + 4y = 180$$

$$80 + 4y = 180$$

$$4y = 100$$

$$y = 25$$

$$y = 25$$

4. If $m\angle 1 = 3x + 2$ and $m\angle 2 = 60 - x$, find $m\angle 2$.

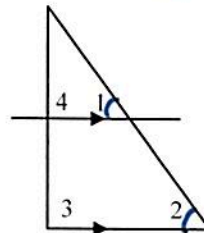
$$m\angle 2 = 45.5^\circ$$

$$3x + 2 = 60 - x$$

$$4x = 58$$

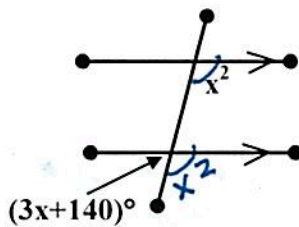
$$x = 14.5$$

$$\angle 2 = 60 - 14.5$$



5. Find the value(s) of x.

x = -8, 5



$$x^2 + 3x + 140 = 180$$

$$-180$$

$$x^2 + 3x - 40 = 0$$

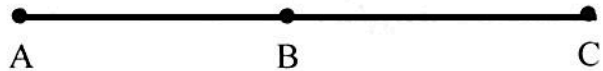
$$(x+8)(x-5)$$

$$x = -8, 5$$

6.

Given: $AC = AB + AB$

Prove: $AB = BC$



Statements

Reasons

1. $AC = AB + AB$

1. Given

2. $AC = AB + BC$

2. Segment addition Post

3. $AB + AB = AB + BC$

3. Transitive

4. $AB = BC$

4. SPOE

7. Find the value of x and y, if $c \parallel d$ and $m\angle 1 = x + 3y$,

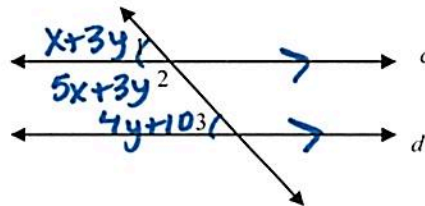
$m\angle 2 = 5x + 3y$ and $m\angle 3 = 4y + 10$?

y = 10

x = 20

$$x + 3y = 4y + 10$$

$$x = y + 10$$



$x = 10 + 10$

$$x + 3y + 5x + 3y = 180$$

$$6x + 6y = 180$$

$$6(y + 10) + 6y = 180$$

$$6y + 60 + 6y = 180$$

$$12y = 120$$

$$y = 10$$

8. State the lines which must be parallel and give a reason.

If no lines must be parallel, write none.

A. $\angle 11 \cong \angle 3$

m // n corr. \angle

B. $\angle 12 \cong \angle 7$

_____ none

C. $\angle 10 \cong \angle 15$

c // d Alt \angle

