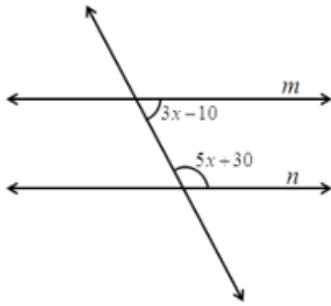


1.

In the figure shown below, line  $m$  and line  $n$  are parallel. What is the value of  $x$  ?



$$3x - 10 + 5x + 30 = 180$$

$$8x + 20 = 180$$

$$\begin{array}{r} -20 \\ \hline \end{array}$$

$$8x = 160$$

$$\begin{array}{r} \frac{8}{8} \\ \hline \end{array}$$

$$x = 20$$

2. Classify the following as parallel, perpendicular, or neither.

*\* Slopes \**

$$\begin{array}{l} y = \frac{6}{5}x - \frac{8}{5} \\ y = \frac{6}{5}x + 5 \end{array}$$

par.

Same

opposite  
reciprocal

$$\begin{array}{l} y = \frac{1}{2}x + \frac{1}{2} \\ y = -2x - 5 \end{array}$$

perp.

$$\begin{array}{l} y = \frac{5}{7}x + \frac{8}{7} \\ y = -\frac{7}{5}x + 10 \end{array}$$

perp.

$$\begin{array}{l} y = 2x + 5 \\ y = 3x + 4 \end{array}$$

neither

3.

What is the equation, in slope-intercept form, of the line parallel to  $y = 5x + 2$  that passes through the point with coordinates  $(-2, 1)$ ?

$m = 5$

same  
Slope

$$y = mx + b$$

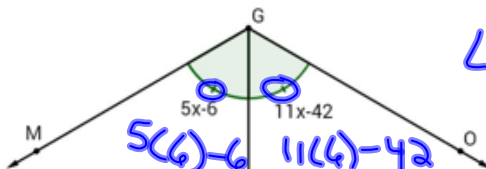
$$y = 5x + 11$$

$$1 = (5)(-2) + b$$

$$1 = -10 + b$$

$$\begin{array}{r} +10 \quad +10 \\ \hline 11 = b \end{array}$$

4. Find the value of  $x$ , and the measures for  $\angle MGN$ ,  $\angle NGO$ , and  $\angle MGO$



$$\angle MGO = 24 + 24 = 48$$

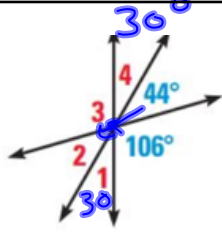
$$\begin{array}{l} 5(6) - 6 \\ 30 - 6 \\ \hline 24^\circ \end{array}$$

$$\begin{array}{l} 11(6) - 42 \\ 66 - 42 \\ \hline 24^\circ \end{array}$$

$$\begin{array}{l} 5x - 6 = 11x - 42 \\ -5x + 42 \quad -5x + 42 \\ \hline 36 = 6x \end{array}$$

$$6 = x$$

$$\begin{array}{l} 36 = 6x \\ \hline 6 \quad 6 \end{array}$$



5. Find the measures for angles 1, 2, 3, and 4.

$$\angle 3 = 106^\circ$$

$$\angle 2 = 44^\circ$$

$$\angle 1 = 30^\circ$$

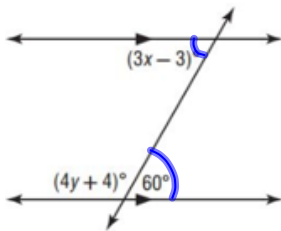
$$\angle 4 = 30^\circ$$

$$106 + 44 + x = 180$$

$$\begin{array}{r} 150 + x = 180 \\ -150 \quad -150 \\ \hline x = 30 \end{array}$$

6.

Find the measure of x and y:

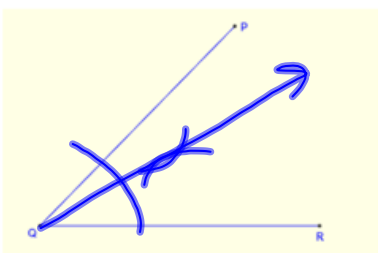


$$\begin{array}{r} 3x - 3 = 60 \\ +3 \quad +3 \\ \hline 3x = 63 \\ \textcircled{x = 21} \end{array}$$

$$\begin{array}{r} 4y + 4 + 60 = 180 \\ 4y + 64 = 180 \\ -64 \quad -64 \\ \hline 4y = 116 \\ \frac{4y}{4} = \frac{116}{4} \\ \textcircled{y = 29} \end{array}$$

7.

Rearrange the following sentences given below so as to construct an angle bisector of  $\angle Q$  in the following figure.



3  
4  
1  
2

- || From where the arc crosses leg. Make an arc in the angles interior. Without changing the compass width repeat for the other leg.
- || Draw a line from Q to where the arcs crosses.
- || Place the compass point on the angle's vertex. Set the compass to any convenient width.
- || Draw an arc across each leg.

8.

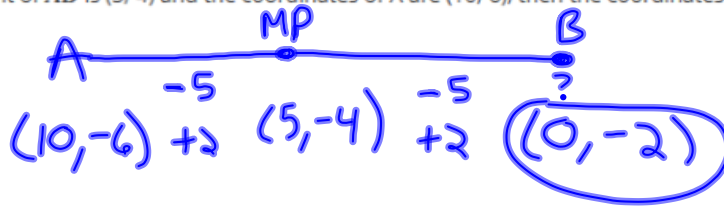
Directions - Choose all the geometric parts that could be named from the diagram (there is more than one correct answer).



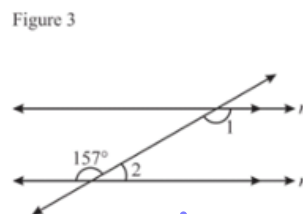
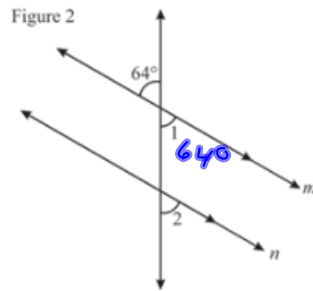
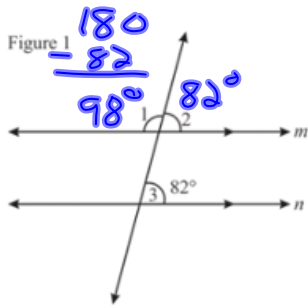
- $\overleftrightarrow{EG}$
- B  $\overrightarrow{HI}$
- C  $\overrightarrow{EH}$
- $\overrightarrow{GE}$
- E  $\overrightarrow{EG}$

9.

If the midpoint of  $\overline{AB}$  is  $(5,-4)$  and the coordinates of A are  $(10,-6)$ , then the coordinates of B are



10.



Figures	Angle 1	Angle 2
Figure 1	$98^\circ$	$82^\circ$
Figure 2	$64^\circ$	64
Figure 3	$157^\circ$	$23^\circ$

11.

The equation for line  $j$  can be written as  $y = 2x + 8$ . Another line  $k$  is perpendicular to line  $j$  and passes through the point  $(6, -6)$ . Choose the equation for line  $k$ .

(A)  $y = \frac{1}{2}x - 3$

(B)  $y = -\frac{1}{2}x - 3$

(C)  $y = -2x - 3$

(D)  $y = -\frac{3}{2}x + 3$

$x, y$

$$m = \frac{2}{1} \rightarrow -\frac{1}{2}$$

opp. rec. slope

$$y = mx + b$$

$$-6 = \left(-\frac{1}{2}\right)(6) + b$$

$$\begin{array}{r} -6 = -3 + b \\ +3 \quad +3 \\ \hline \end{array}$$

$$\boxed{-3 = b}$$

12.

If the line through  $(-2, 4)$  and  $(5, d)$  is parallel to the graph of  $y = 3x + 4$ . Find the value of  $d$ .

$$y = mx + b$$

$$4 = (3)(-2) + b$$

$$\begin{array}{r} 4 = -6 + b \\ +6 \quad +6 \\ \hline b = b \end{array}$$

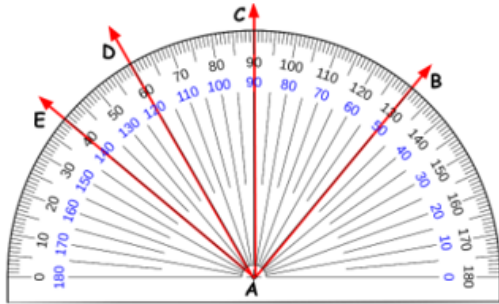
$$y = 3x + 10$$

$$d = 3(5) + 10$$

$$d = 15 + 10$$

$$\boxed{d = 25}$$

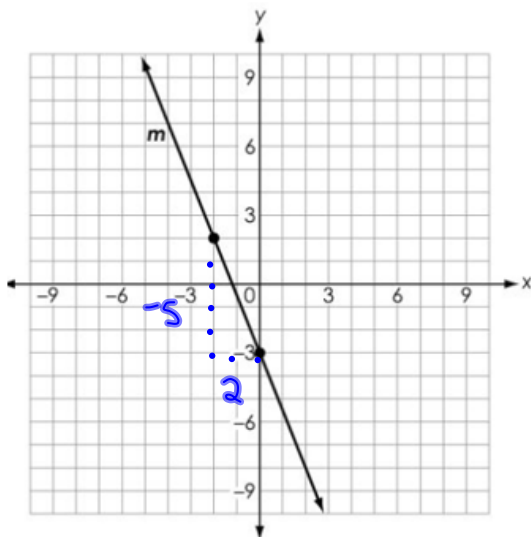
13. Find the measures of  $\angle DAC$ , and  $\angle BAE$



$$\angle DAC = 120 - 90 = 30^\circ$$

$$\angle BAE = 140 - 50 = 90^\circ$$

14. What is the equation of the line perpendicular to  $m$ , and passes through the point  $(3, 2)$ ?



$$m = -\frac{5}{2} \rightarrow \frac{2}{5}$$

$$y = \frac{2}{5}x + \frac{4}{5}$$

$$y = mx + b$$

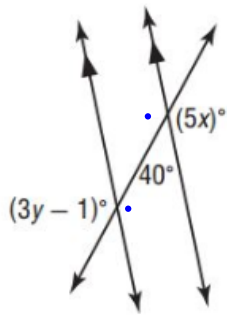
$$2 = \left(\frac{2}{5}\right)(3) + b$$

$$2 = \frac{6}{5} + b$$

$$-\frac{6}{5} \quad -\frac{6}{5}$$

$$\frac{4}{5} = b$$

15. Find the measures of x and y



$$\begin{aligned} 5x + 40 &= 180 \\ -40 &-40 \\ \hline 5x &= 140 \\ \frac{5}{5} &\frac{5}{5} \\ \hline x &= 28 \end{aligned}$$

$$\begin{aligned} 3y - 1 + 40 &= 180 \\ 3y + 39 &= 180 \\ -39 &-39 \\ \hline 3y &= 141 \\ \frac{3}{3} &\frac{3}{3} \\ \hline y &= 47 \end{aligned}$$