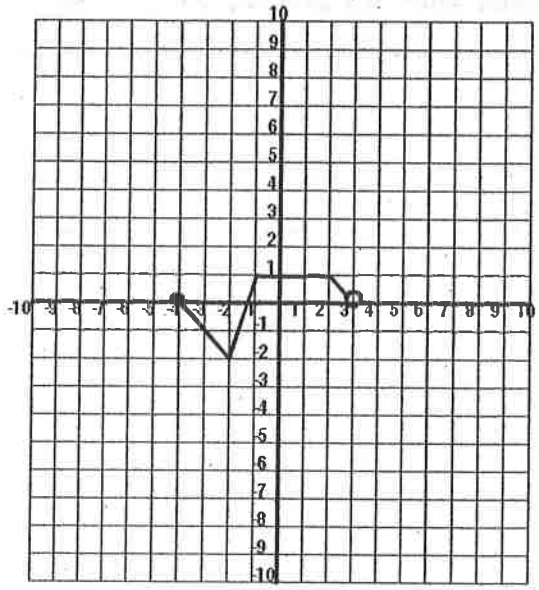
***RELATIONS & FUNCTIONS. Show work.

1. Give an example of a function and clearly state two different ways that you can determine whether a relation is a function.

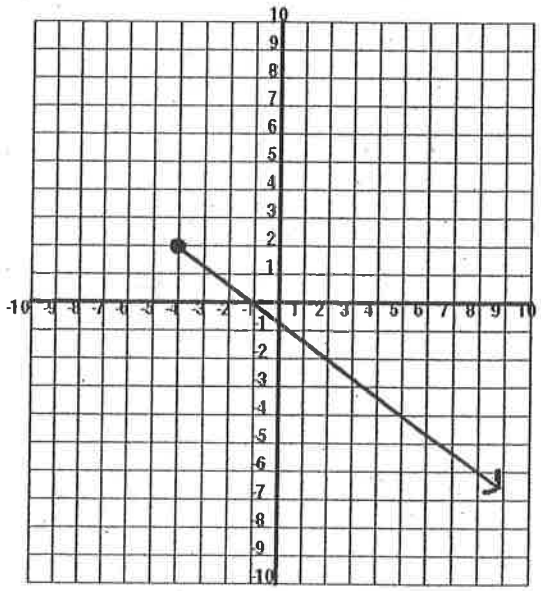
2. State the domain and range as an inequality.



Domain _____

Range _____

3. State the domain and range in interval notation.



Domain _____

Range _____

4. Wally's Wonder Windows charges a fixed rate of $20 plus $60 for every window installed. Write an equation in function notation that relates the cost (C) as a function of the windows (w) installed.

5. When does a graph appear as a series of dots and when should it have a line through the points? Use the words discrete and continuous in your answer.

6. The altitude of a plane is a function of the time since takeoff. Which axis will represent the altitude and is this the dependent or independent variable?

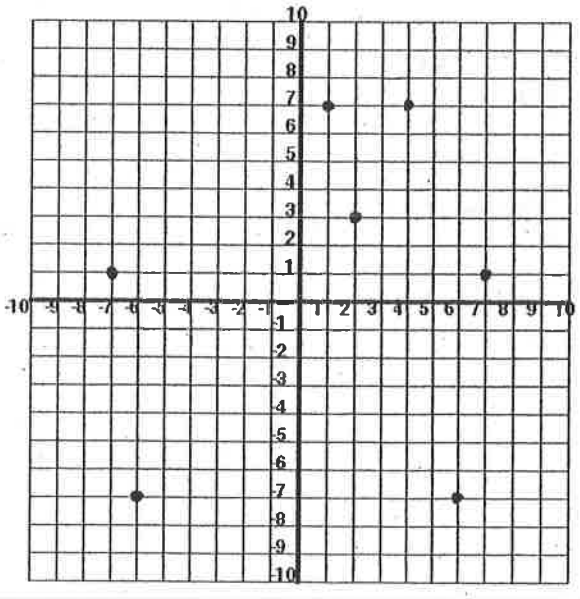
7. If $C(n)=81.5n-700$ find $C(10)$.

$C(10)=$

8. If $P(x)=50-6x$ find x if $P(x)=-31$.

$x=$

9. Use the graph to find $f(7)$.



$f(7)=$

10. Use the above graph to find x when $f(x)=-7$.

$x=$

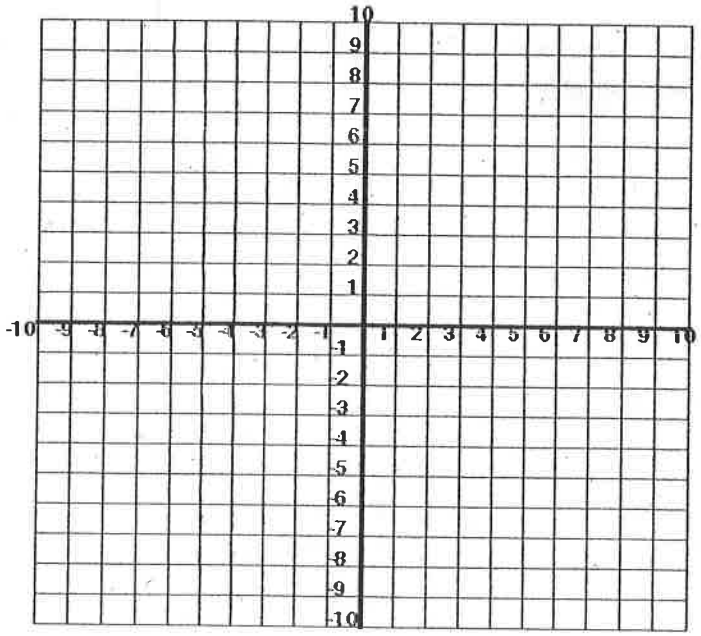
****CHARACTERISTICS OF LINES.** Show work.

1. Line AB has points A (6, -7) and B (1,4). Calculate the slope of AB.
   State the slope of a line perpendicular to AB.

Slope of AB is _____

Perpendicular to AB is _____

2. Graph the line through the point (2,4) with a slope of $-\frac{2}{3}$.



3. Describe how to graph a line with a slope of 4 and a y-intercept of -6.

4. Name 3 ordered pairs with integers that satisfy the equation $2x-6y+4=0$.

5. Find the x and y-intercepts of the equation $5x-6y=-10$.

6. Find k if the slopes $-\frac{4}{5}$ and $\frac{k}{6}$ are parallel.

$k=$

7. Find k if the slopes $\frac{3}{2}$ and $-\frac{k}{5}$ are perpendicular.

$k=$

8. State the slope and y-intercept of $3y=6x-1$.

Slope is _____

Y-intercept is _____

9. State the slope and y-intercept of $2x-7y=4$.

Slope is _____

Y-intercept is _____

10. Find the slope of a roof that has a span of **16 m** and the height of the roof is $\frac{1}{8}$ of the span.

Slope is _____

*****EQUATIONS OF A LINE. Show work.

1. Determine the equation of a line that has a y-intercept of -3.5 and a slope of $\frac{5}{2}$ in slope-intercept form.

2. Determine the equation of a line with point $(2,5)$ and a slope of -3 in $y=mx+b$ form.

3. Determine the equation of a line that passes through the points $(6,1)$ and $(-10,9)$ in general form.

4. Find t if AB is parallel to CD.

   A $(3,4)$ B $(8,2)$ C $(6,1)$ D $(16, t)$

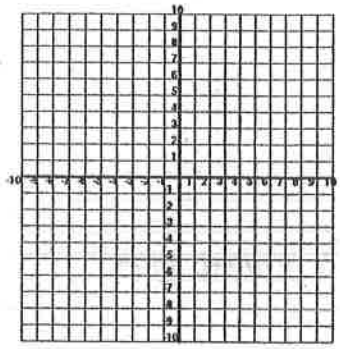
   $t =$

5. Find t if AB is perpendicular to CD.

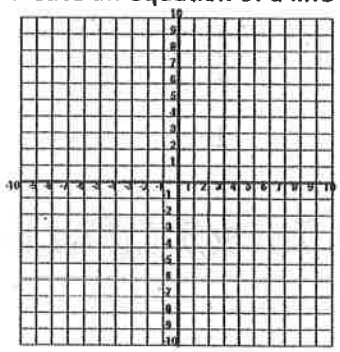
   A $(3,4)$ B $(8,2)$ C $(6,1)$ D $(16, t)$

   $t =$

6. Create an equation of a line in the form $y=mx+b$ that has $m>0$ and $b<0$. Graph the equation.



7. Create an equation of a line with a slope of zero. Graph the equation.



8. State the slope, x-intercept and y-intercept of $y=4x-1$.

Slope is _____

x-intercept is _____

y-intercept is _____

9. A line segment AB is parallel to CD. State the slope and y-intercept of line CD.

A (3,4) B (5,8) C (6,0)

Slope is _____

Y-intercept is _____

10. A line segment AB is perpendicular to CD. State the slope and y-intercept of CD.

A (3,4) B (5,8) C (6,0)

Slope is _____

Y-intercept is _____