Determine the GCF for each set of numbers

a) 12 and 16

b) 24 and 40

Determine the LCM for each set of numbers

a) 6 and 8

b) 9 and 15

A polynomial is simply a name given to an algebraic expression that:
   a.   Does not have variables in the denominator of any terms
   b.   Does not have variables inside the radical sign

<u>Terminology</u> used to describe the parts of a polynomial

Ex:  $4ab - 2bc + c^2 - 8$

   a)   the terms are

   b)   the variables are

   c)   the constants terms are

   d)   the coefficients are

note:  Polynomials are usually written in <u>descending order of powers</u> Ex:  $3x^2 - 2 + x - 6x^3$  should be written as  $-6x^3 + 3x^2 + x - 2$.  <u>The degree</u> of a term) is the sum of the exponents of its variables.

| Polynomial | # of terms | variables | constant | coefficient | Degree |
|---|---|---|---|---|---|
| 5 | | | | | |
| 3x | | | | | |
| 4 x + 2 | | | | | |
| $x^2$ + 3 xyz + 8 | | | | | |
| 3 $x^3y^2$ + 2 $x^2y^2$ − $xy^2$ − 7 | | | | | |

## Multiply

$$(7x^8y^2)(-2x^8y^7) =$$

$$\frac{24x^5y^8}{8x^4y^3} =$$

$$(8x^3y^9)^{\frac{1}{3}} =$$

$$(6a^{\frac{1}{2}}b^{\frac{2}{3}})(4a^{\frac{3}{2}}b^{\frac{2}{3}}) =$$

$$\left(\frac{64x^8y^3}{16yx^2}\right)^{\frac{1}{2}} =$$

$$(2x+1)(x+3) =$$

$$(2x+2)(x+1) =$$

$$(3x^2 - 2x + 4)(5x+1) =$$

$$5(x+3)+7(x-6)$$

$(2x-5)^2$

$(3x-5)(3x+5)$

Factor

$18m^5 + 6m^7$

$12x^3 y^2 - 20xy^5 + 8x^2 y^3$

5w( a + b) + 3(a + b)

$5m^2\,t - 10m^2 + t^2 - 2t$

$3y^2 - 5y - 2$

$6a^2 + 5a - 4$

$3x^2 + 12x + 9$

$r^2 + 10r - 24$

$36x^2 + 100$                                                           $4x^2 - 36$

There are six ways to show a relation between numbers.

1. <u>table of values</u>: a chart with 2 columns
2. <u>ordered pairs</u>: a set of numbers where the first value is the x and the second is y. (x,y)
3. <u>graph:</u> the ordered pairs plotted on the coordinate plane
4. <u>equation:</u> an algebraic representation (if there is no pattern you can not get an equation)
5. <u>words:</u> explain what is happening (if there is no pattern you can not get an equation)
6.  <u>Arrow diagram</u>: similar to the table of values except arrows join the relation

How can we identify functions?

Eg for $f(x) = -5x + 6$ solve for

$f(3n)$                                              $f(n+4)$

For the same function $f(x) = -5x + 6$ solve for *x* when

        *f(x)* = -34                               *f(x)* = 16
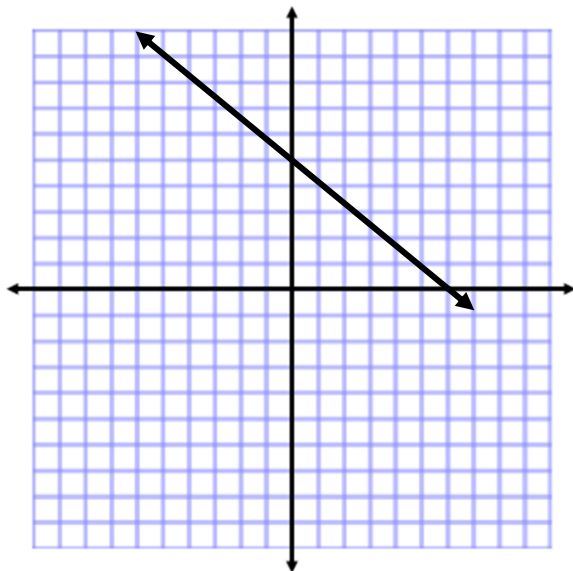
In general there are four types of slopes

Positive Slope                                         Negative Slope
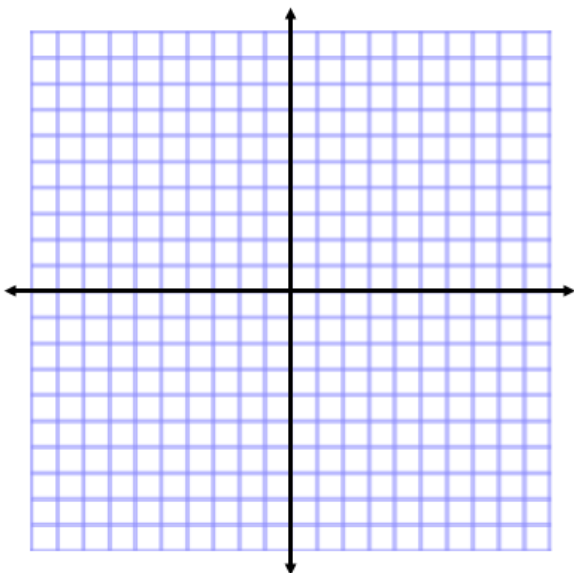
Zero slope                                             undefined slopes



Write the equation of the graph

Draw a line going through (-5,8) with a slope of  -3

The cost of renting a car is calculated using a fixed cost and a variable cost.  The function is represented by   **C = 0.10d + 20.**  where C is the total cost and d is the distance in kilometres.

a)  What is the slope, and what does it represent?

c)  What is the y-intercept and what does it represent?

State the slope and the y-intercept for each.

$y = \dfrac{-2}{3}x + 5$          slope:                    y-int:

$0 = 6x + 4y + 12$          slope:                    y-int:

Write an equation in general form goes through the points of (-3,10) and (2,-5)

Write an equation in slope y-int. form that goes through (6,5) and is parallel to $2x + 4y - 5 = 0$

Find an equation of a line that is perpendicular to $y = \dfrac{-2}{3}x - 5$ which also goes through (7,6) in slope y-int form.

## Solve systems of equations

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

b) $\begin{array}{l} y = x + 8 \\ y = \dfrac{-2}{5}x + 1 \end{array}$

c) $\begin{array}{l} 5x + 2y = -5 \\ 3x - y = 8 \end{array}$

d) $\begin{array}{l} 2x - y = 7 \\ x + 3y = 14 \end{array}$