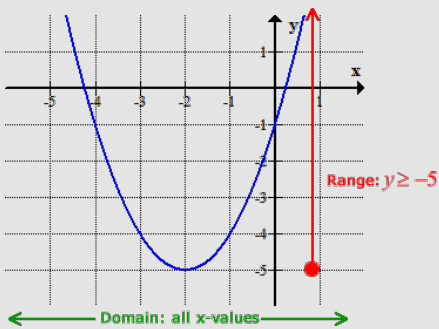


### Domain and Range



### Solving domain and range

$$y = x^2 + x - 2/x^2 - x - 2$$

domain --> [function] range -->

### Family function (transformation)

$$y = a0 f(ax-h) - k$$

$y = c$  is a horizontal line

$y = x$  the points on the graph have points (a,a)

$y = x^2$  graph is shaped like a U

$y = x^3$  graph is symmetrical about the origin

$y = 1/x$  graph has two branches

$y = |x|$  graphed like a V

$y = \lceil x \rceil$  is greater than the integer less than or equal to x

### Trigonometry

Sin=opposite/hypotenuse

cos=adjacent/hypotenuse

tan=opposite/adjacent

Tan=Sin/Cos Sec=1/cos Csc=1/sin Cot=1/Tan  
or Cos/Sin

### Log expanding and simplifying

$$\text{Log}_b(m^n) = n \cdot \text{Log}_b(m)$$

1.) Multiply the inside log and turn into addition outside the log and vice versa

2.) divide inside the log and turn into subtraction outside the log, vice versa

3.) exponent on everything inside a log can be moved out in front as a multiplication, vice versa.

The Relationship: " $\text{log}_b(x) = y$ " means the same thing as " $b^y = x$ "

Logarithms are really exponents (powers); they're just written differently

$\text{log}_b(b) = 1$ , for any base b, because  $b^1 = b$

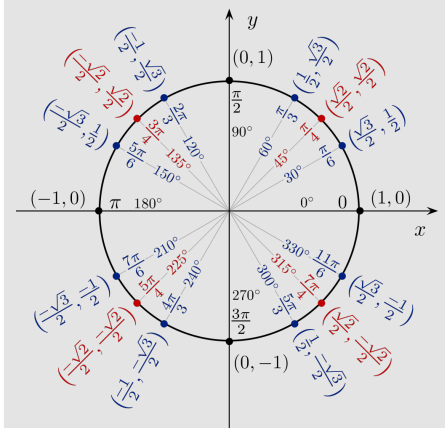
$\text{log}_b(1) = 0$ , for any base b, because  $b^0 = 1$

$\text{log}_b(a)$  is undefined if a is negative

$\text{log}_b(0)$  is undefined for any base .

$\text{log}_b(b^n) = n$ , for any base b

### Unit Circle



### Angle Difference and Sum

$$\sin(A+B) = \sin A \cos B + \cos A \sin B$$

$$\cos(A+B) = \cos A \cos B - \sin A \sin B$$

$$\tan(A+B) = \frac{\tan A + \tan B}{1 - \tan A \tan B}$$

$$\sin(A-B) = \sin A \cos B - \cos A \sin B$$

$$\cos(A-B) = \cos A \cos B + \sin A \sin B$$

$$\tan(A-B) = \frac{\tan A - \tan B}{1 + \tan A \tan B}$$

C

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