Lines

Slope = m	Slope-intercept: $y=mx+b$
$m = dy/dx$	Point-slope: $y-y1=m(x-x1)$
Parallel: m=m	General Form: $Ax+By+C=0$
Perpendicular: $m=-(1/m)$	

Distance= $\text{sqr}((x2-x1)^2+(y2-y1)^2)$

Absolute Values and Inequalities

Absolute Value is distance from 0	(= not included
labl=lal*lbl	[= included
la-bl=lb-al	Infinities use (in notation

Check inequality problems for both positive and negative answers, and that the answers make sense in original problem

Use number lines for systems of equations

Exponents

$a^x * a^y = a^{x+y}$

$a^x / a^y = a^{x-y}$

$(a^x)^y = a^{xy}$

$(ab)^x = a^x * b^x$

$(a/b)^x = (a^x/b^x)$

Functions

In functions, each x value has only one y value

Use vertical line test to determine if a graph shows a function

$(f+g)(x)=f(x)+g(x)$	$(f-g)(x)=f(x)-g(x)$
$(fg)(x)=f(x)*g(x)$	$(f/g)(x)=f(x)/g(x), g(x)=0$
$(f \circ g) =f(g(x))$	

For inverse functions, $f(g(x))=x$

Logarithms

Assume all these logs have a base of a

$y=\log(x)$ when $a^y=x$

$\log(xy) = \log(x)+\log(y)$

$\log(x/y)=\log(x)-\log(y)$

$\log(x)^n=n*\log(x)$

$\log(1)= 0, \log(a)=1$

Natural Log and e

ln and e are inverse operations and cancel each other out

$\ln(xy)=\ln(x)+\ln(y)$	$e^x * e^y =e^{x+y}$
$\ln(x/y)=\ln(x)-\ln(y)$	$e^x \backslash e^y =e^{x-y}$
$\ln(x)^n=n*\ln(x)$	$(e^x)^y= e^{xy}$

Change of Base: $\log(\text{base } a)(x) = \ln(x)/\ln(a)$

Trigonometric Functions and Graphs

Function	Graph Descriptions (Without Transformations)
sinx= O/H	Sinusoidal, Starts at 0
cosx= A/H	Sinusoidal, Starts at A
tanx= O/A	Positive cubic functions
cscx= H/O	Positive and Negative Parabolas (Starts at 0)
secx= H/A	Positive and Negative Parabolas (Doesn't start at 0)
cotx= A/O	Negative cubic functions

Trig functions take an angle and find the corresponding ration of the sides

Inverse functions take the ration of the sides and find the corresponding angle

Graphs

Increasing: $m>0$	Decreasing: $m<0$	Constant: $m=0$

Minimum: Decreasing to Increasing

Maximum: Increasing to Decreasing