

3 Ways to Graph a Line

--	--	--

3 Formulas to Memorize

--	--	--

Slopes of Parallel and Perpendicular Lines

Parallel Lines	Perpendicular Lines
----------------	---------------------

Write an Equation of a Line with the given information

Slope and y-intercept given	Slope and a point given	Two points given

2 Special Lines – Memorize their equations or know how to construct them

--	--

Graphing Inequalities

What are the steps to graph an inequality? When do you reverse the inequality symbol?	Inequality	Line	Shading
	$y > mx + b$		
	$y \geq mx + b$		
	$y < mx + b$		
	$y \leq mx + b$		

Functions – How do you know whether a relation is a function?

--

Vocabulary and Notation

Function Notation	Domain	Range

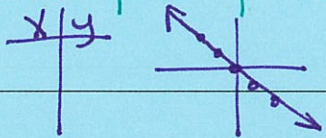


4 Ways to Evaluate Functions

Formula	Graph	Table	Set of Points

Write a linear function given two function values

--

3 Ways to Graph a Line

<p>make a table and plot points</p> 	<p>Plug in 0's for x and y to find the intercepts and plot them</p> 	<p>$y = mx + b$ Plot b and use the slope to find your second point</p> 
---	--	---

3 Formulas to Memorize

<p>Slope $m = \frac{y_2 - y_1}{x_2 - x_1}$</p>	<p>Slope-intercept $y = mx + b$</p>	<p>point-slope $y - y_1 = m(x - x_1)$</p>
---	--	--

Slopes of Parallel and Perpendicular Lines

<p>Parallel Lines Same slope</p>	<p>Perpendicular Lines slopes are opposite reciprocals ex: $\frac{1}{2}$ and $-\frac{2}{1}$</p>
--------------------------------------	---

Write an Equation of a Line with the given information

<p>Slope and y-intercept given m b Plug numbers into $y = mx + b$</p>	<p>Slope and a point given m (x_1, y_1) use $y - y_1 = m(x - x_1)$ simplify to $y = mx + b$</p>	<p>Two points given (x_1, y_1) (x_2, y_2) Find the slope $m = \frac{y_2 - y_1}{x_2 - x_1}$ use $y - y_1 = m(x - x_1)$ + simplify</p>
---	---	--

2 Special Lines – Memorize their equations or know how to construct them

<p>horizontal line: slope = 0 ex: $y = 4$</p>	<p>vertical line: slope is undefined ex: $x = 3$</p>
--	---

Graphing Inequalities

What are the steps to graph an inequality?	Inequality	Line	Shading
① solve for y ② use $m + b$ to graph ③ draw dotted or solid line When do you reverse the inequality symbol? when you multiply or divide by a negative ④ shade	$y > mx + b$	dotted	above
	$y \geq mx + b$	solid	above
	$y < mx + b$	dotted	below
	$y \leq mx + b$	solid	below

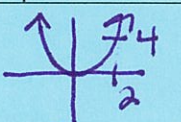
Functions – How do you know whether a relation is a function?

The vertical line test - Any vertical line must cross the graph at most 1 time to be a function.

Vocabulary and Notation

Function Notation	Domain	Range
$y = f(x)$	The set of all x-values	The set of all y-values

4 Ways to Evaluate Functions

Formula	Graph	Table	Set of Points								
$f(x) = 3x + 7$ $f(1) = 3(1) + 7$ $= 3 + 7$ $= 10$	 $f(2) = 4$	<table border="1"> <tr> <td>x</td> <td>0</td> <td>1</td> <td>2</td> </tr> <tr> <td>f(x)</td> <td>-5</td> <td>-3</td> <td>-1</td> </tr> </table> $f(1) = -3$	x	0	1	2	f(x)	-5	-3	-1	$\{(-2, 0), (3, 1), (7, 10)\}$ $f(-2) = 0$
x	0	1	2								
f(x)	-5	-3	-1								

Write a linear function given two function values

$f(3) = -7$ $(3, -7)$ $m = \frac{1 - (-7)}{-1 - 3} = \frac{8}{-4} = -2$	$f(-1) = 1$ $(-1, 1)$	$y - 1 = -2(x - (-1))$ $y - 1 = -2(x + 1)$ $y - 1 = -2x - 2$ $+1 \quad +1$ $y = -2x - 1$ $f(x) = -2x - 1$
---	--------------------------	--