

2-D LINEAR EQUATIONS “CHEAT SHEET”

all math/GWJ/08

3 forms

<u>form name</u>	<u>form of equation</u>	<u>when/what/how to use</u>
standard (general)	$ax + by = c$ no fractions $a > 0$	easy to graph with x_{int} & y_{int} set $y=0$, solve $ax_{\text{int}} = c$, $(x_{\text{int}}, 0)$ set $x=0$, solve $by_{\text{int}} = c$, $(0, y_{\text{int}})$ graph points, connect-the-dots
slope-intercept	$y = mx + b$ $b = y_{\text{int}}$ $m = \text{slope}$ $= \text{rise/run}$ $= \frac{(y_2 - y_1)}{(x_2 - x_1)}$	easy to graph starting from $(0, b)$ and using a slope triangle (m by 1)
point-slope (yo-yo)	$y - y_1 = m(x - x_1)$ or $y - y_0 = m(x - x_0)$ known point (x_1, y_1) or (x_0, y_0) known slope m (same as above)	easy to formulate from a known point and slope; easy to transform to whichever form you need

slope

$$m = \text{rise/run} = \frac{(y_2 - y_1)}{(x_2 - x_1)} \quad \text{positive up to the right, formula does the +/- sign for you}$$

special cases

$m = 0$	$m = \text{undefined}$ (something/0)	$b = 0$
$y = b$	$x = \text{constant}$	$y = mx$
horizontal line	vertical line	line thru origin

parallel & perpendicular stuff:

consider two lines

$$y = m_1x + b_1$$

$$y = m_2x + b_2$$

$$m_1 = m_2$$

$$m_1 = -1/m_2$$

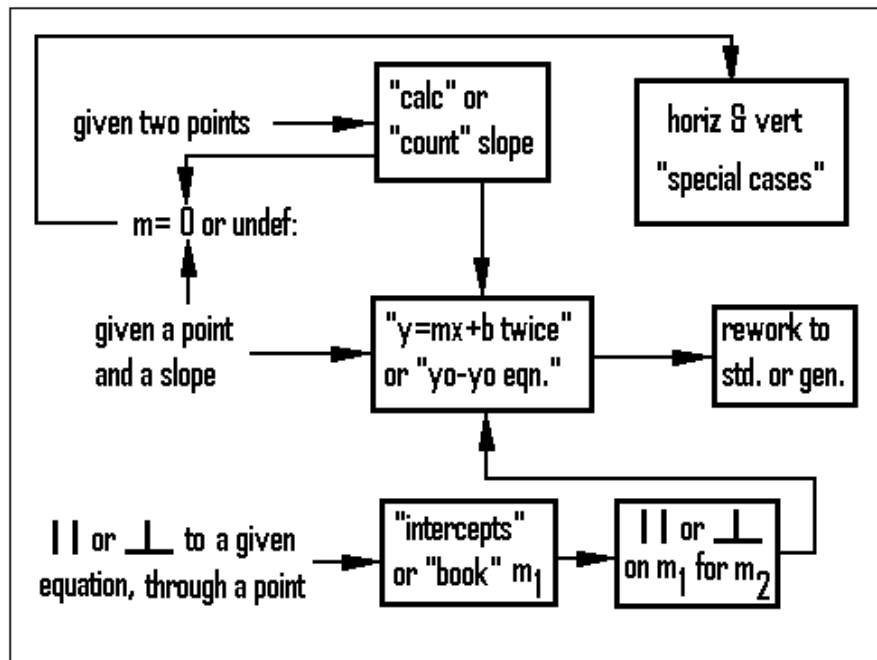
$$m_1 = m_2 \text{ \& } b_1 = b_2$$

parallel lines

perpendicular lines

same lines

Roadmap for "Write-the-Equation" Problems:



Roadmap for "Graph-the-Equation" Problems:

