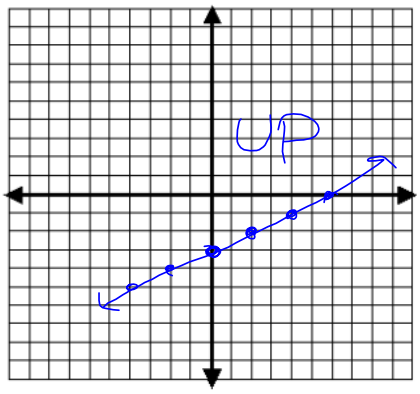
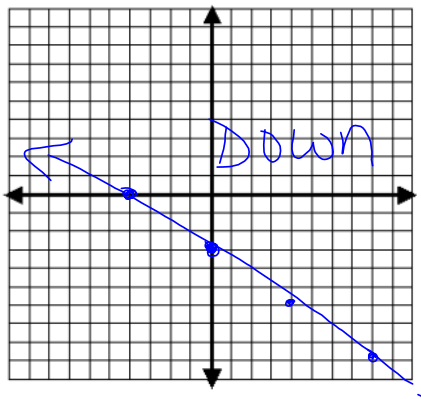
Graphing Linear Equations and Inequities



① $y = \frac{1}{2}x - 3$

pos → $m = \frac{1}{2}$ $\frac{\text{rise}}{\text{run}}$

$b = -3$



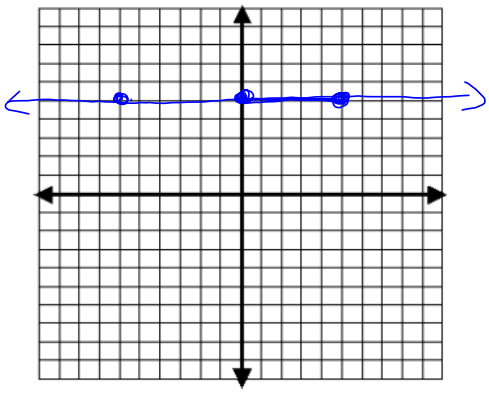
② $3x + 4y = -12$

$-3x \qquad -3x$

$\frac{4y}{4} = \frac{-3x}{4} - \frac{12}{4}$

$y = -\frac{3}{4}x - 3$

neg → $m = -\frac{3}{4}$ down right $\qquad b = -3$



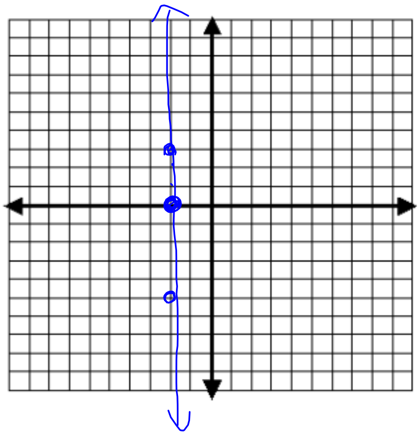
③ $y = 5$ *Horizontal line

$m = \frac{0}{5} = 0$

Zero

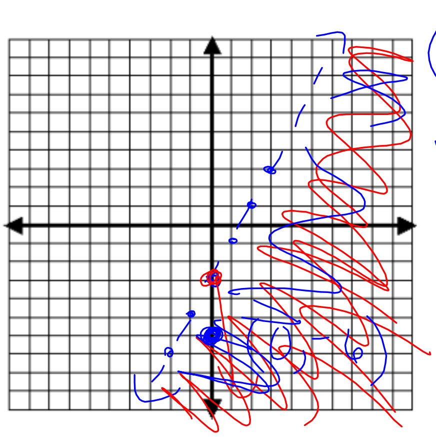
$>$ or $<$ line is not included } dashed

solid { $\geq$ or $\leq$ line is included



$X = -2$ * vertical line

$m = \frac{3}{0}$ = undefined



(5) $y < 2x - 3$ *dashed

less

$m = \frac{2}{1}$

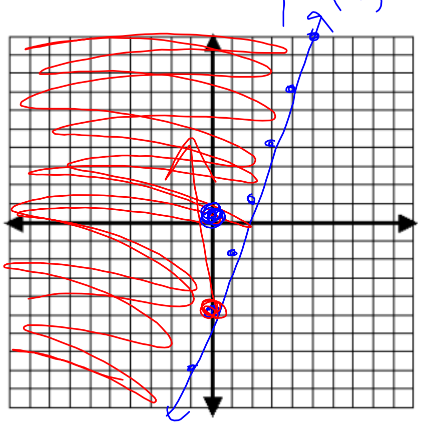
$b = -3$

$(0, -6)$

$-6 < 2(0) - 3$

$-6 < -3$ ✓

$0 \leq 5$ ✓



$(0, 0)$

$3(0) - 0 \leq 5$

$3x - y \leq 5$ *Solid

$-3x \qquad -3x$

$\frac{-y}{-1} \leq \frac{-3x}{-1} + \frac{5}{-1}$

$y \geq 3x - 5$