

- 1) Represent the equation of a line that is perpendicular to the line with the equation $2x + 3y = 6$ and has the same y-intercept as $y = -x - 5$.

slope	y-intercept	equation
perpendicular lines have slopes that are opposite reciprocals $2x + 3y = 6$ $3y = -2x + 6$ $y = -\frac{2}{3}x + 2$ $m = \boxed{\frac{3}{2}}$	$y = -x - 5$ $b = \boxed{-5}$	$y = \frac{3}{2}x - 5$

- 2) Represent the equation of the line that passes through the points $(-1, 5)$ and $(3, -3)$.

slope	y-intercept	equation
$\frac{\Delta y}{\Delta x} = \frac{5 - (-3)}{-1 - 3}$ $= \frac{8}{-4} \rightarrow \boxed{-2}$	$(-1, 5)$ $y = mx + b$ $5 = -2(-1) + b$ $5 = 2 + b$ $3 = b$	$y = -2x + 3$

- 3) Represent the equation of a line that is parallel to a line with the equation $4x + 8y = -16$ and passes through the point $(2, 1)$.

slope	y-intercept	equation
parallel lines have the same slope $4x + 8y = -16$ $8y = -4x - 16$ $y = -\frac{1}{2}x - 2$ $m = \boxed{-\frac{1}{2}}$	$(2, 1)$ $y = mx + b$ $1 = -\frac{1}{2}(2) + b$ $1 = -1 + b$ $\boxed{2} = b$	$y = -\frac{1}{2}x + 2$

- 4) Represent the equation of a line with an x-intercept of -2 and a y-intercept of 3 .

slope	y-intercept	equation
$\frac{\Delta y}{\Delta x} = \frac{3 - 0}{0 - (-2)}$ $= \boxed{\frac{3}{2}}$	$\begin{matrix} \uparrow \\ (-2, 0) \end{matrix}$ $(0, 3)$ $b = 3$	$y = \frac{3}{2}x + 3$

5) Write the equation of a line that runs through the points listed in the table below.

x	y
5	-1
→ 7	0
→ 9	1
11	2

slope	y-intercept	equation
$\frac{\Delta y}{\Delta x} = \frac{1-0}{9-7}$ $= \boxed{\frac{1}{2}}$	$(7,0) \quad y = mx + b$ $0 = \frac{1}{2}(7) + b$ $0 = 3.5 + b$ $\boxed{-3.5} = b$	$y = \frac{1}{2}x - 3.5$