Name: Y. Lamontagne

Quiz 8

This quiz is graded out of 14 marks. No books, watches, notes or cell phones are allowed. You must show all your work, the correct answer is worth 1 mark the remaining marks are given for the work. If you need more space for your answer use the back of the page.

Question 1. *(3 marks)* Use the intercept(s) to graph $f(x) = 3x - 1$.

x-int: $0 = f(x)$

$0 = 3x - 1$

$1 = 3x$

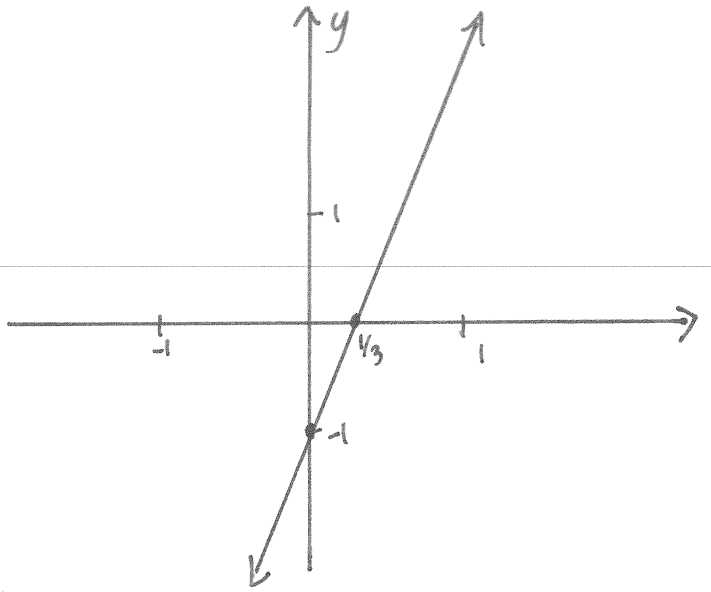
$\frac{1}{3} = x$

∴ x-intercept is $(1/3, 0)$

y-int: $(0, f(0))$

$= (0, 3(0) - 1)$

$= (0, -1)$



Question 2. For a linear function, if $f(0) = -1$ and $f(1) = 1$, then find:

a. *(2 marks)* $f(x) = ax + b$

$f(0) = -1 \Rightarrow (0, -1)$

$f(1) = 1 \Rightarrow (1, 1)$

$a = m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-1-1}{0-1} = 2$

$f(x) = 2x + b$

$-1 = 2(0) + b$

$-1 = b$

∴ $f(x) = 2x - 1$

b. *(1 mark)* $f(5)$

$f(5) = 2(5) - 1 = 9$

c. *(1 mark)* the value of x when $f(x) = 15$

$15 = 2x - 1$

$16 = 2x$

$x = 8$

Question 3. *(2 marks)* Find the slope of the line perpendicular to the line $4x - 5y = 3$.

$-5y = -4x + 3$

$y = \frac{4}{5}x - \frac{3}{5}$

∴ $m = 4/5 \Rightarrow m_\perp = \frac{-5}{4}$

Question 4. *(5 marks)* Find the slope intercept equation and the point slope equation of the line through the point $(3, -1)$ and parallel to the line $2x + 3y = 3$.

$3y = -2x + 3$

$y = -\frac{2}{3}x + 1$

Since parallel $m = -\frac{2}{3}$

$y - y_1 = -\frac{2}{3}(x - x_1)$

$y - (-1) = -\frac{2}{3}(x - 3)$

$y + 1 = -\frac{2}{3}(x - 3)$ ← point slope equation

$y + 1 = -\frac{2}{3}(x - 3)$

$y + 1 = -\frac{2}{3}x + 2$

$y = -\frac{2}{3}x + 1$

slope intercept equation