1.10

HW# 9 8, 12, 16, 20, 24, 32, 36, 48, 66, 72

Math 161
- Allman

Thanks!
- Kaylee

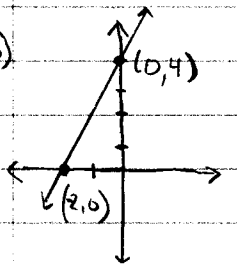
8) $P(1,2)$, $Q(3,3)$

$m = \frac{y_2 - y_1}{x_2 - x_1}$ $\quad m = \frac{2-(3)}{1-(3)} = \frac{-1}{-2} = \boxed{\frac{1}{2}}$

12) $P(-1,-4)$, $Q(6,0)$

$m = \frac{-4-0}{-1-6} = \frac{-4}{-7} = \boxed{\frac{4}{7}}$

16)




$P(-2,0)$, $Q(0,4)$

$m = \frac{0-4}{-2-0} = \frac{-4}{-2} = 2$

b = y-intercept is 4 so... $\quad y = mx + b$

$y = (2)x + (4)$

$\boxed{y = 2x + 4}$ or $0 = 2x + 4 - y$

20) Find line that goes through $(-2,4)$ with slope $= -1$

using the equation $y - y_1 = m(x - x_1)$ we get...

$y - 4 = (-1)(x - (-2))$

$y = -x - 2 + 4 \Rightarrow \boxed{0 = x + 2 - y}$

24) Find line that goes through $(-1,-2)$ and $(4,3)$

slope $= m = \frac{-2-3}{-1-4} = \frac{-5}{-5} = 1$ so,

$y - y_1 = m(x - x_1)$

$y - (-2) = (1)(x - (-1)) \Rightarrow y = x + 1 - 2 \Rightarrow \boxed{0 = x - 1 - y}$

32) Find line that has y-intercept $= 6$ and parallel to $2x + 3y + 4 = 0$

$4 + 2x + 3y = 0 \Rightarrow 3y = -2x - 4 \Rightarrow y = -\frac{2}{3}x - \frac{4}{3}$

so slope is $= \underline{-\frac{2}{3}}$

using $y = mx + b \Rightarrow \boxed{y = -\frac{2}{3}x + 6}$

36, 48, 66, 72

36) Find equation of Line that passes through $(\frac{1}{2}, -\frac{2}{3})$, perpendicular to $4x - 8y = 1$

① Find slope of $4x - 8y = 1$

$-8y = -4x + 1$

$y = \frac{1}{2}x - \frac{1}{8}$ slope $= \frac{1}{2}$

② Find reciprocal of $\frac{1}{2}$ to find our slope.

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

③ Find Equation $y - y_1 = m(x - x_1)$

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

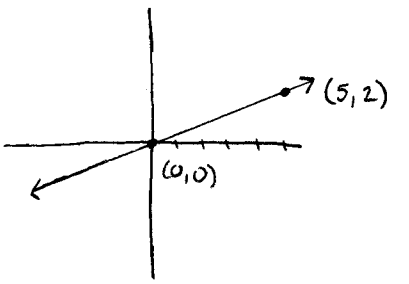
$y = -2x + 1 - \frac{2}{3} \Rightarrow \boxed{y = -2x + \frac{1}{3}}$

48) $2x - 5y = 0$

$-5y = -2x \Rightarrow y = \frac{2}{5}x$

slope $= m = \frac{2}{5}$

y-intercept $= b = 0$




66) $T = 0.02t + 15.0$ $t$ = years since 1950

a) the slope represents the increase in average surface temp. in °C per year. The T-intercept is the average surface Temp. in 1950, or 15°C.

b) in 2050

$t = 2050 - 1950$

$= 100$ so... $T = 0.02(100) + 15 \boxed{= 17°C}$

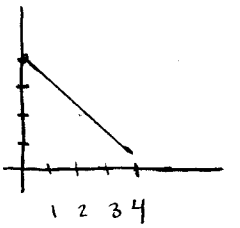
72) Using $t$ in place of $x$ and $V$ in place of $y$

a) Find slope using $(0, 4000)$ & $(4, 200)$

$m = \frac{200 - 4000}{4 - 0} = \frac{-3800}{4} = -950$

Using V-intercept, the equation is $\boxed{V = -950t + 4000}$

b)




c) The slope represents the rate of depreciation of the computer, and V-intercept is the cost.

d) when $t = 3$, the value of the computer is

$V = -950(3) + 4000$

$\boxed{= 1150}$