Assignment #5
201-009-50

P. 89 # 5

(e) PARALLEL TO $2y = -3x + 8$

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

So $m = -3/2$ $\quad y = -\frac{3}{2}x + b$

Plug in $(10, 5)$ $\quad 5 = -\frac{3}{2}(10) + b$

$20 = b$

EQUATION IS $\boxed{y = -\frac{3}{2}x + 20}$

(f) PARALLEL TO $3y = -x + 6$

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

So $m = -\frac{1}{3}$ $\quad y = -\frac{1}{3}x + b$

plug in $(0, -5)$ $\quad -5 = -\frac{1}{3}(0) + b$

$b = -5$

EQUATION IS $\boxed{y = -\frac{1}{3}x - 5}$

6

(f) perpendicular to

$3y = -x + 6$

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

$y = 3x + b$

plug in $(0, -5)$ $\quad -5 = 3(0) + b$

$b = -5$

EQUATION IS $\boxed{y = 3x - 5}$

(e) perpendicular to

$4y = -x + 10$

$y = -\frac{1}{4}x + 10$ so $m = 4$

$y = 4x + b$

plug in (3,3) $3 = 4(3) + b$

$b = -9$

EQUATION is $\boxed{y = x - 9}$

8 (b) slope is 3

$$3 = \frac{y_2 - y_1}{x_2 - x_1} \Rightarrow 3 = \frac{-1-5}{k-2}$$

$$\Rightarrow 3(k-2) = -6$$

$$3k - 6 = -6$$

$$3k = 0$$

$$\boxed{k = 0}$$

(g) $3x + ky = 5$

$2x - 7y = 4$ are parallel so they must have the SAME slope

$ky = -3x + 5$

$y = \frac{-3}{k}x + \frac{5}{k}$

$2x - 7y = 4$

$-7y = -2x + 4$

$y = \frac{2}{7}x - \frac{4}{7}$

slopes are equal:

$$-\frac{3}{k} = \frac{2}{7}$$

$$-21 = 2k$$

$$\boxed{k = -\frac{21}{2}}$$

#15 IMPORTANT!

$f(3)=1$ & $f(5)=-3$

THIS MEANS THE LINE PASSES THROUGH $(3,1)$ & $(5,-3)$

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

$y=-2x+b$ plug in $(3,1)$

$1=-2(3)+b \Rightarrow b=7$

EQUATION IS $y=-2x+7$

NOW FIND $f(4)$ THAT IS VALUE WHEN $x=4$

$y=-2(4)+7$

$=-1$

$\boxed{f(4)=-1}$

P.101 #1

(f) $y=-2x^2+6x$

y-INTERCEPT $(x=0)$ IS $(0,0)$

x-INTERCEPTS $(y=0)$

$0=-2x^2+6x$

$0=-2x(x-3)$

$x=0$ & $x=3$ SO $(0,0)$ & $(3,0)$

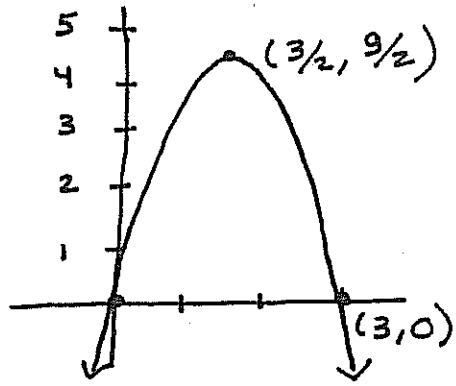
VERTEX $x=\frac{-b}{2a}=\frac{-6}{2(-2)}=\frac{3}{2}$

y-COORDINATE $y=-2\left(\frac{3}{2}\right)^2+6\left(\frac{3}{2}\right)$

$=-\frac{9}{2}+\frac{18}{2}=\frac{9}{2}$

Vertex is $\left(\frac{3}{2}, \frac{9}{2}\right)$

Graph



(h) $y = x^2+6x+5$

y-intercept ($x=0$) : $(0,5)$

x-intercepts ($y=0$):

$0 = x^2+6x+5$

$= (x+5)(x+1)$

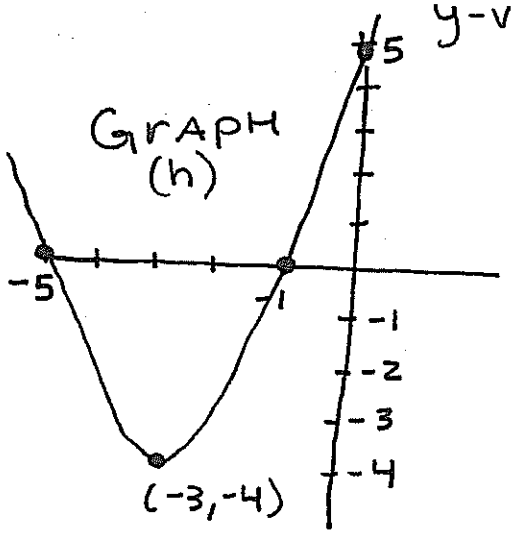
$x = -5 \quad x = -1 \quad (-1,0)$ & $(-5,0)$

vertex $x = \frac{-b}{2a} = \frac{-6}{2} = -3$

y-value $y = (-3)^2+6(-3)+5$

$= 9-18+5$

$= -4$ vertex $(-3,-4)$



(K) $y = x^2+4x+12$

y-intercept $(0,12)$

x-intercepts $0 = x^2+4x+12$

QUADRATIC

$x = \frac{-4 \pm \sqrt{16-4(12)}}{2a}$

NO SOLNS

No x-intercepts

vertex $x = \frac{-4}{2} = -2$

$y = (-2)^2-8+12$

$= 8$

3rd point $x=-$ $y=12$