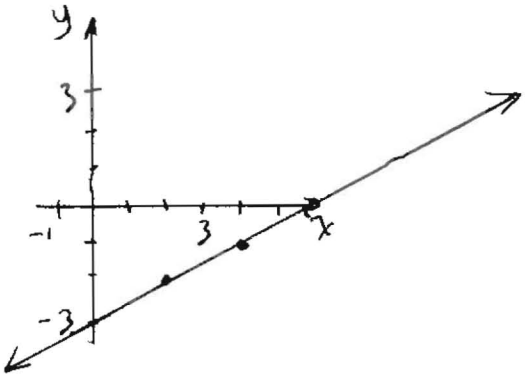
1. $-2|x-1| \geq -4$

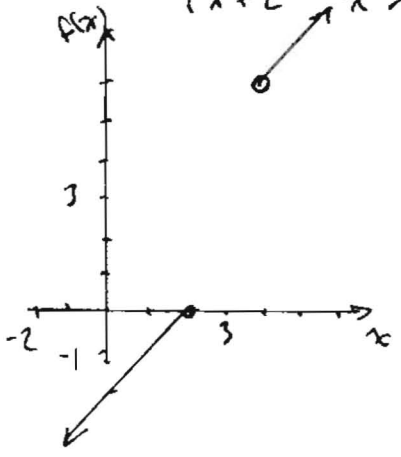
$|x-1| \leq 2$

$|F(x-1) \geq 0$	$|F(x-1) < 0$
$x-1 \leq 2$	$-(x-1) \leq 2$
$x \leq 3$	$x-1 \geq -2$
	$x \geq -1$

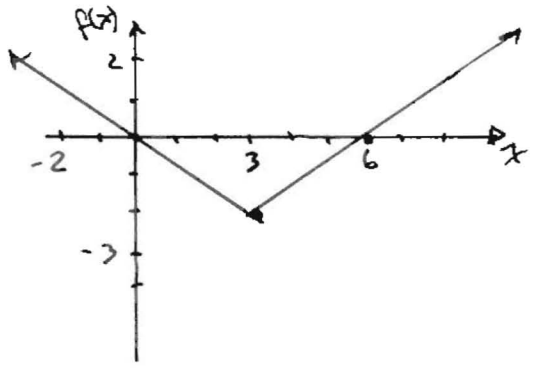
2. (a) $y+1 = \frac{1}{2}(x-4)$



(b) $f(x) = \begin{cases} x-2, & x \leq 2 \\ x+2 & x > 4 \end{cases}$



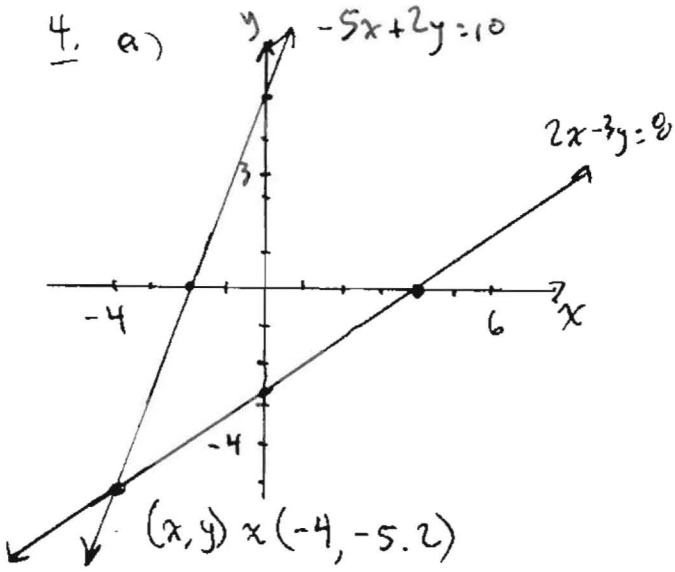
(c) $f(x) = \frac{2}{3}|x-3| - 2$



3. (a) $f(-3) = -2(-3)+3 = 9$ (b) $f(2) = 2$

(c) $f(6) = 6$ (d) $f(3) = 3$.

4. a)



$(x, y) \approx (-4, -5.2)$

b) $2(2x - 3y = 8)$
$+3(-5x + 2y = 10) \rightarrow -11x = 46$

$x = -\frac{46}{11}$

$2\left(-\frac{46}{11}\right) - 3y = 8$

$-3y = \frac{180}{11}$

$y = -\frac{60}{11}$

$(x, y) = \left(\frac{-46}{11}, \frac{-60}{11}\right)$

5. $3x + 3y + z = 30$

$7+(10x - 3y - 7z = 17) \rightarrow 4(13x - 6z = 47)$

$+3(-6x + 7y + 3z = -49) \rightarrow -(52x - 40z = -28)$

$16z = 216$

$z = \frac{27}{2}$

$3\left(\frac{128}{13}\right) + 3y + \left(\frac{27}{2}\right) = 30$

$y = \frac{-113}{26}$

$13x - 6\left(\frac{27}{2}\right) = 47$

$x = \frac{128}{13}$

$(x, y, z) = \left(\frac{128}{13}, \frac{-113}{26}, \frac{27}{2}\right)$

6. Slope $= \left(\frac{1-5}{1-(-2)}\right) = -\frac{4}{3}$ So, $y - 1 = -\frac{4}{3}(x - 1)$.

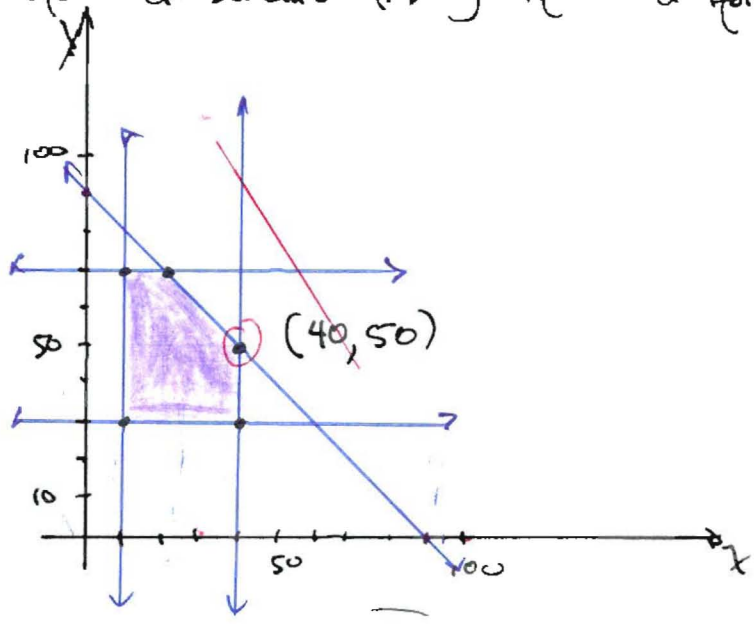
7. Let x represent the # of burgers and y the # of hot dogs.

$P = .33x + .21y$

$10 \le x \le 40$

$30 \le y \le 70$

$x + y \le 90$



They should make 40 hamburgers and 50 hot dogs for a maximum profit of $23.70.