

① ^a $C = 10h + 50$ G
 $C = 30h + 10$ A $x = 2$ $y = 70$ Break even @ 2 hours

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

③ $m = \frac{3-1}{5+2} = \frac{2}{7}$

④ $y + 2 = -2(x - 4)$

⑤ $y - 5 = \frac{2}{3}(x - 1)$

⑥ $y - 4 = 5(x - 2)$

⑦ $y + 3 = \frac{5}{3}(x + 2)$

⑧ Graph

⑨ Graph

⑩ graph $\Rightarrow 8x - 4y > 6$
 $(-\frac{1}{4}) \cdot 4y > (-8x + 6) \cdot \frac{1}{4}$ $-\frac{6}{4} = -\frac{3}{2}$
 $y < 2x - \frac{3}{2}$

⑪ $y \geq \frac{4}{3}x + 4$

⑫ $-x - y = 5$ $y = -x - 5$
 $3x - y = -3$ $y = 3x - 3$ independent

⑬ $y = -4x - 5$ dependent
 $8x + 2y = -10$ $\frac{1}{2}2y = (-8x - 10) \cdot \frac{1}{2} \Rightarrow y = -4x - 5$

⑭ $-x - y = 0$ $2x - 2y = -12$ $\frac{1}{2}(2x + 12) = 2y(\frac{1}{2})$
 $y = -x$ $y = x + 6$ $(-3, 3)$

⑮ Graph

⑯ Graph

yes problems & work
 shown, you need
 to understand All

17) $P_{\max} = 2x + 5y$
 $(0,0) \quad P=0$
 $(0,6) \quad P=30$
 $(4,8) \quad P=8+40=48$
 $(7,0) \quad P=14$

18) GRAPH
 $3x - y \leq 6 \rightarrow y \geq 3x - 6$
 $(\frac{1}{3}) 5y \leq (5x + 10) \frac{1}{5} \quad y \leq x + 2$

$$P_{\max} = 8x - 5y$$

$(0,0) \quad P=0$
 $(0,2) \quad P=-10$
 $(4,6) \quad P=32-30=2$
 $(2,0) \quad P=16$

19) $A+B \geq 4 \quad B \geq -A+4$
 $15A+5B \leq 60 \quad 5B \leq -15A+60 \quad B \leq -3A+12$

$$B \leq 3A$$

$T = 3A + 4B$
 $\max \quad (1,3) \quad T=3+12=15$
 $(2,6) \quad T=6+24=30$
 $(4,0) \quad T=12$

GRAPH

20) $3x + y = -12$
 $2x - 5y = -8$
 $y = -3x - 12$
 $2x - 5(-3x - 12) = -8$
 $2x + 15x + 60 = -8$
 $17x = -68$
 $x = -68/17 = -4$
 $y = -3(-4) - 12 = 12 - 12 = 0$
 $(-4, 0)$

21) $x - 2y = 0 \quad x = 2y$
 $5x - y = -9 \quad 5(2y) - y = -9$
 $10y - y = -9$
 $9y = -9 \quad y = -1$
 $x = 2(-1) = -2$
 $(-2, -1)$

22) $4x - 3y = 5$
 $4x - 5y = 11$
 $-4x + 3y = -5$
 $4x - 5y = 11$
 $-2y = 6$
 $y = -3$
 $4x + 9 = 5$
 $4x = -4$
 $x = -1$
 $(-1, -3)$

23) $(4x + 2y = -12) \cdot 5$
 $(5x - 5y = 15) \cdot 2$
 $20x + 10y = -60$
 $10x - 10y = 30$
 $30x = -30$
 $x = -1$
 $-4 + 2y = -12$
 $2y = -8$
 $y = -4$
 $(-1, -4)$

24) $x - 2y = -3$
 $-x + 2y = -1$
 $0 = -4$
 no solution

25) $(x - 3y = 6) \cdot 3$
 $3x - 9y = 18$
 $-3x + 9y = -18$
 $3x - 9y = 18$
 $0 = 0$
 Infinite sol.

(26) Graph $U + L \leq 20$ $V \leq -C + 20$
 $U \leq 12$

(27) $L + B = 32 \rightarrow 20 \text{ Lunch}$
 $L = 3B \quad 12 \text{ Breakfast}$

No not Reasonable - The constraint is lunch revenue to be 3 times more than breakfast $\therefore 3(12)$ is 36 lunch revenues and hence, the restaurant will be short 16 lunch revenues.

Spinal

(28) $[-6, 3)$

(29) $y = \sqrt{x-1} + 5$

(30) $f(3) = 2(3) + 1 = 6 + 1 = 7$
 $-h(4) = 4^2 - 7 = 16 - 7 = 9$
 $\quad \quad \quad -2$

(31) $2h(2) = 2^2 - 7 = 4 - 7 = -3 \rightarrow 2(-3) = -6$
 $+3f(-2) = 2(-2) + 1 = -4 + 1 = -3 \rightarrow +3(-3) = -9$
 $\quad \quad \quad \underline{-15}$

(32) Vertical stretch by a factor of 3.

(33) ① horizontal shift right 4 units
 ② reflect across the x-axis

Name: _____ Date: _____ Class: _____

Graphs:

