

Homework

**pg. 192-194 #19-37 odd
exclude # 31**

$$23) P = 3x + y$$

$$x + y \geq 3$$

$$y \geq -x + 3$$

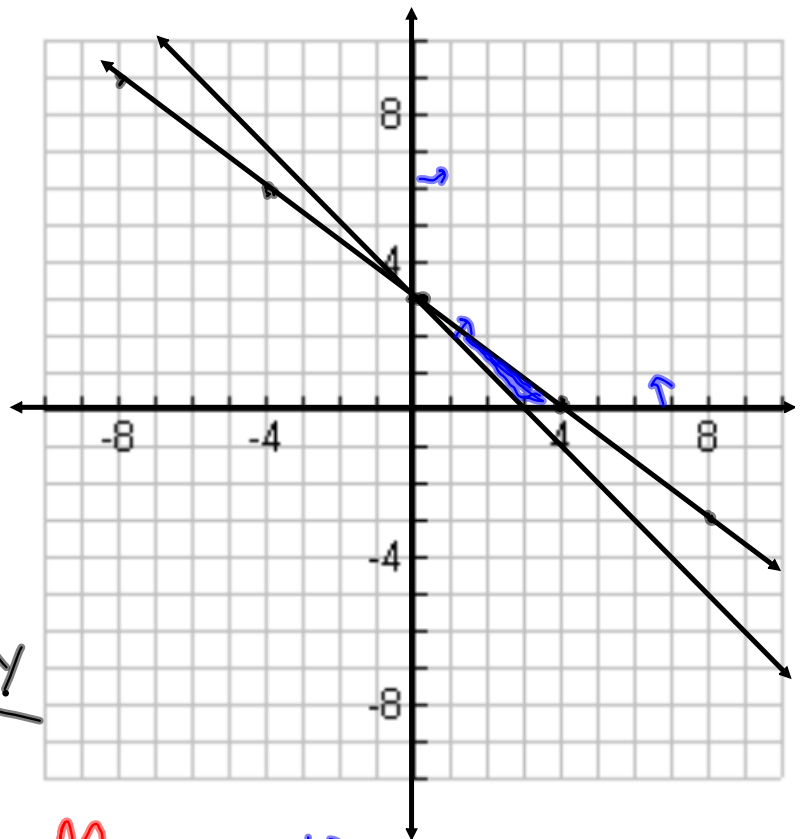
$$3x + 4y \leq 12$$

$$y \leq -\frac{3}{4}x + 3$$

$$x \geq 0$$

$$y \geq 0$$

Vertices	$P = 3x + y$
$(0, 3)$	3
$(4, 0)$	12
$(3, 0)$	9



$$\text{Max} = 12$$

$$\text{Min} = 3$$

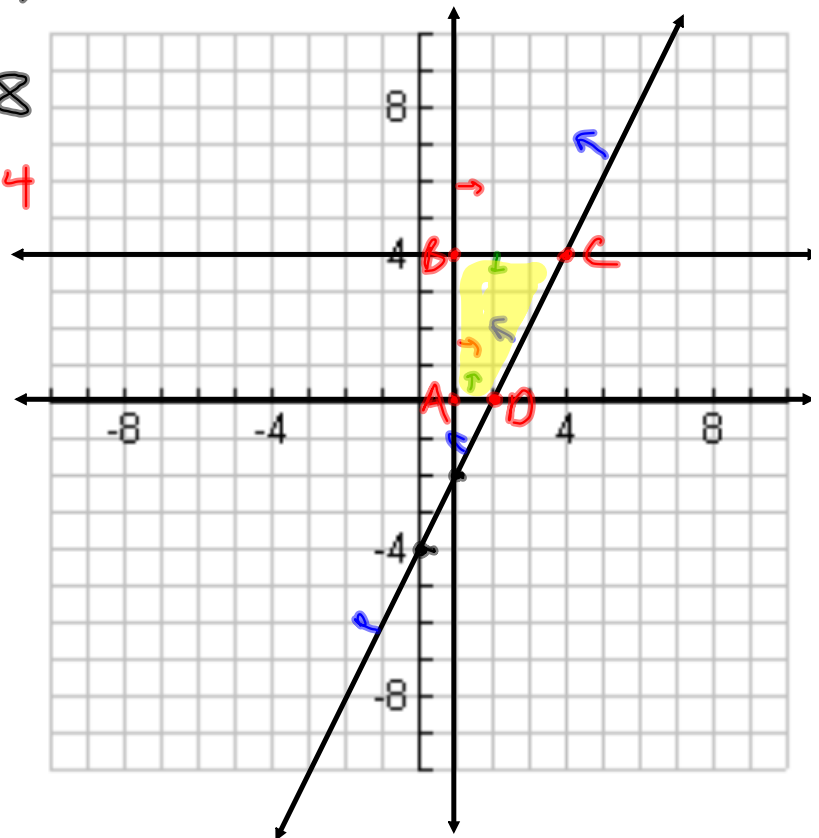
$$25) P = 2x + 7y$$

$$4x - 2y \leq 8$$

$$y \geq +2x - 4$$

$$x \geq 1$$

$$0 \leq y \leq 4$$



	$P = 2x + 7y$
$A(1,0)$	2
$B(1,4)$	30
$C(4,4)$	36
$D(2,0)$	4

$$\text{Max} = 36$$

$$\text{Min} = 2$$

$$27) \quad E = x + y$$

$$x + 2y \geq 3$$

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

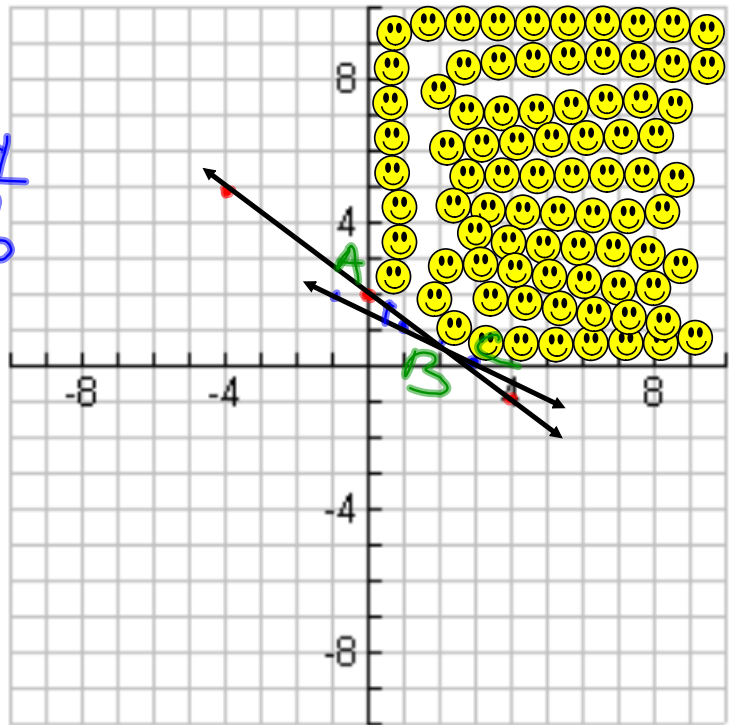
$$3x + 4y \geq 8$$

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

$$x \geq 0$$

$$y \geq 0$$

$$\begin{array}{c|c} x & y \\ \hline 1 & 1 \\ 3 & 0 \end{array}$$



vertices	$E = x + y$
$A(0, 2)$	2
$B(2, \frac{1}{2})$	$2\frac{1}{2}$
$C(3, 0)$	3

Max = No Max
Min = 2

$$29) E = 3x + 2y$$

$$x + y \leq 5$$

$$y \leq -x + 5$$

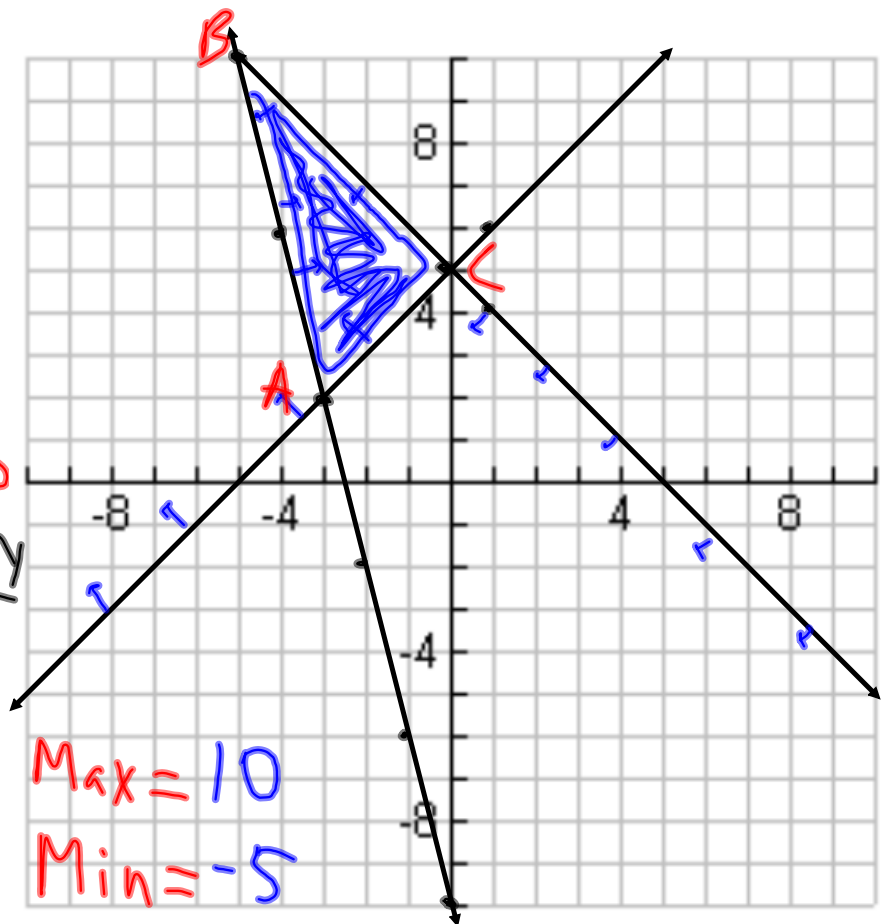
$$y - x \geq 5$$

$$y \geq x + 5$$

$$4x + y \geq -10$$

$$y \geq -4x - 10$$

Vertices	$E = 3x + 2y$
$A(-3, 2)$	-5
$B(-5, 10)$	5
$C(0, 5)$	10



33)

$x = \text{small}$

$y = \text{large}$

$$10,000x + 20,000y \leq 100,000$$

$$y \leq -\frac{1}{2}x + 5$$

$$100x + 75y \leq 500$$

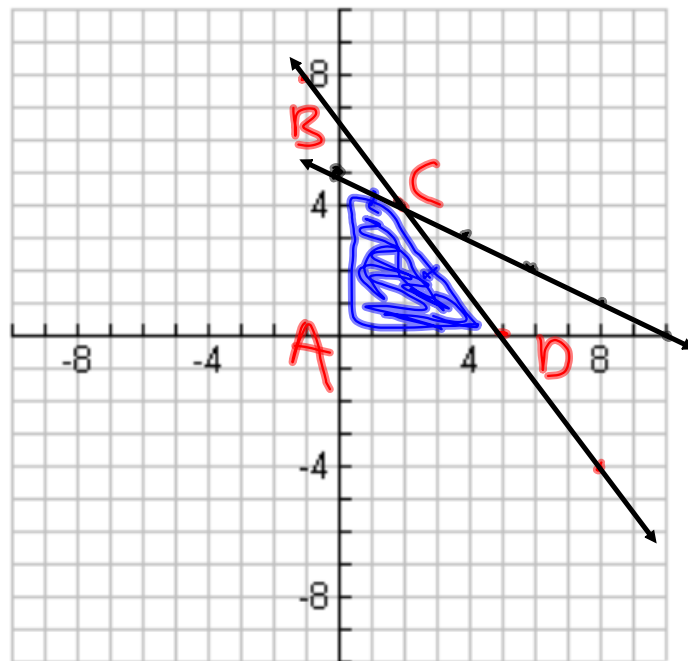
$$y \leq -\frac{4}{3}x + \frac{20}{3}$$

$$x \geq 0$$

$$y \geq 0$$

$$\begin{array}{r|l} x & y \\ \hline 2 & 4 \\ 5 & 0 \end{array}$$

Vertices	$P = 7x + 15y$
A(0,0)	0
B(0,5)	75
C(2,4)	74
D(5,0)	35



Max = 75 passengers

35)

$$45x + 9y \geq 45$$

$$y \geq -5x + 5$$

$$10x + 6y \geq 20$$

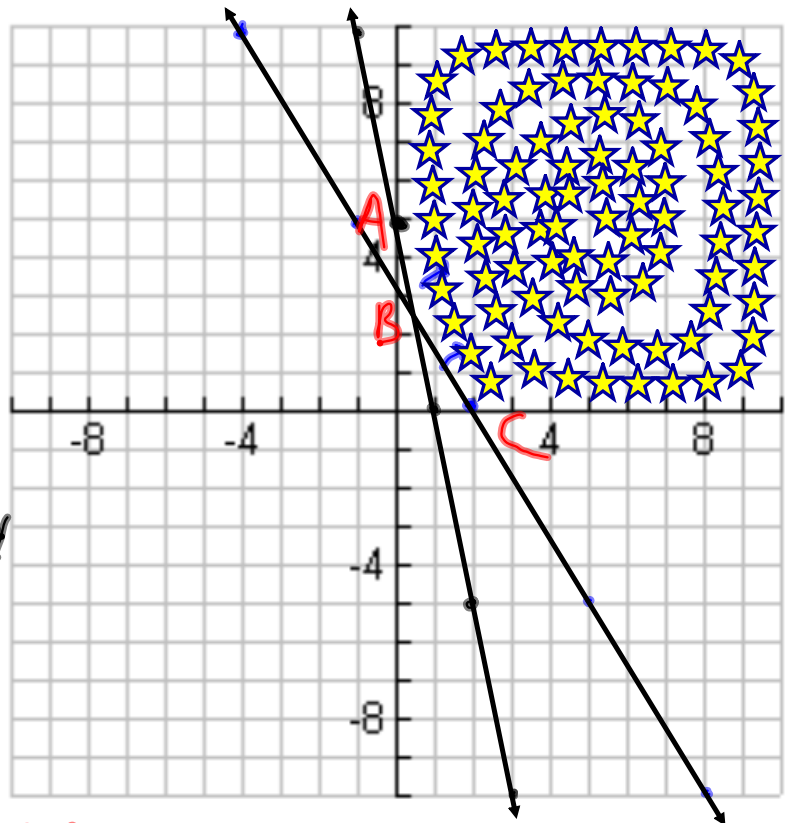
$$y \geq -\frac{5}{3}x + \frac{10}{3}$$

$$x \geq 0$$

$$y \geq 0$$

$$\begin{array}{c|c} x & y \\ \hline 2 & 0 \\ 8 & -10 \end{array}$$

Vertices	$M = 4x + 2y$
$A(0, 5)$	10
$B(\frac{1}{2}, 2\frac{1}{2})$	7
$C(2, 0)$	8



Min = 7 grams

37)

$$6x + 2y \leq 24$$

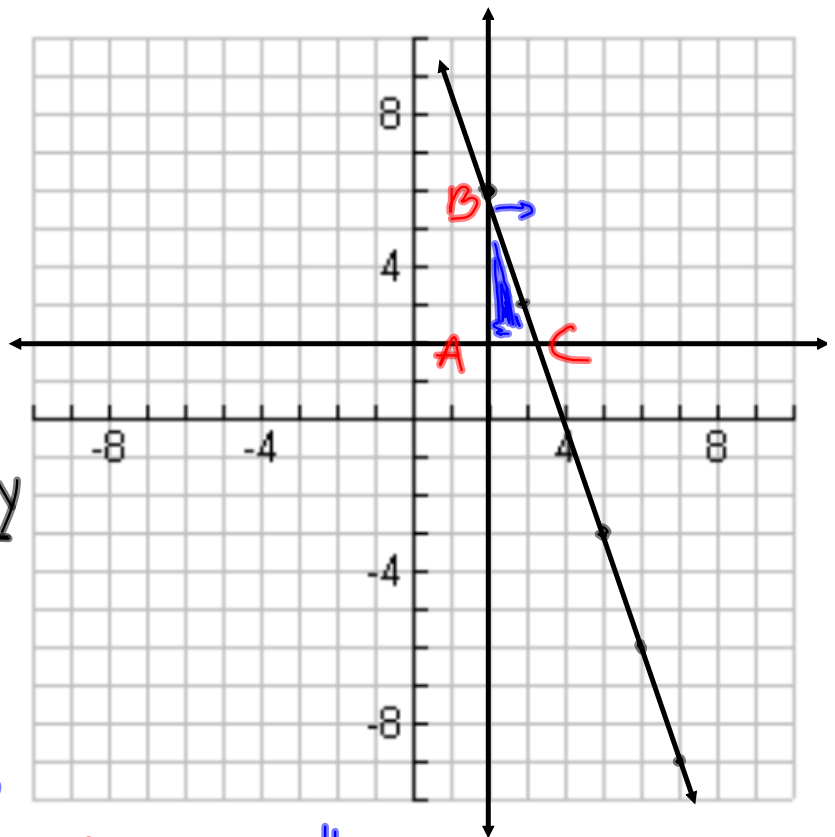
$$y \leq -3x + 12$$

$$x \geq 2$$

$$y \geq 2$$

Vertices	$P = 50x + 20y$
$A(2, 2)$	\$140
$B(2, 6)$	\$220
$(3\frac{1}{3}, 2)$	\$206.67

$x = \text{large}$ $y = \text{small}$



Max = \$220