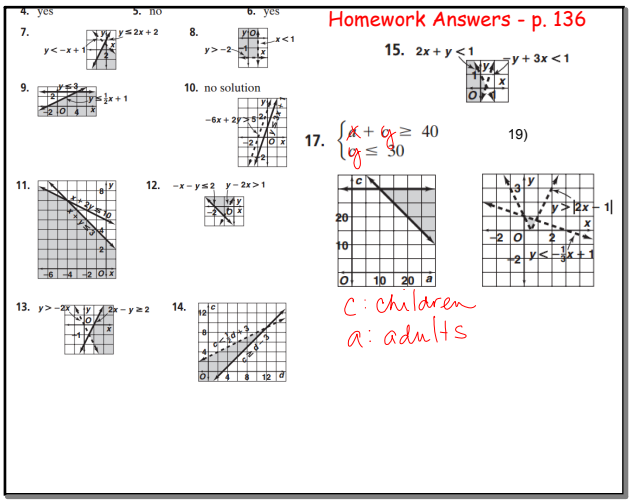
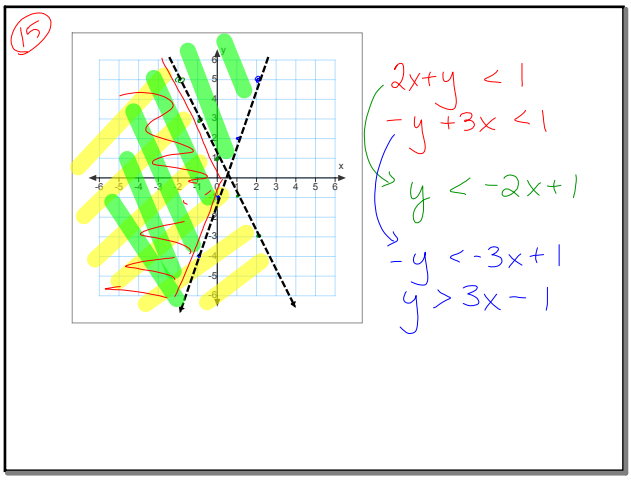
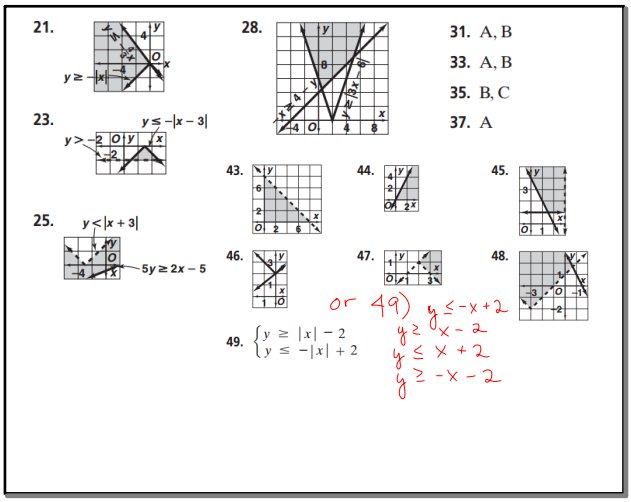


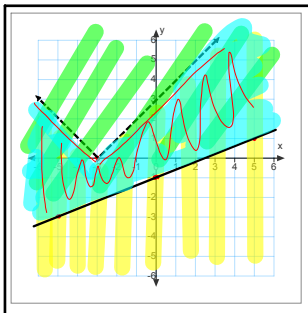
Sep 9-4:10 PM



Sep 14-10:41 AM



Sep 9-4:11 PM



25)

$y < |x+3|$

$\frac{5}{5}y \geq \frac{2}{5}x - \frac{5}{5}$

$y \geq \frac{2}{5}x - 1$

Sep 14-10:35 AM

3.4 Linear Programming
Part I

Aug 3-10:04 PM

VOCABULARY

Linear Programming identifies conditions that make a quantity as large (**maximum**) or as small (**minimum**) as possible.

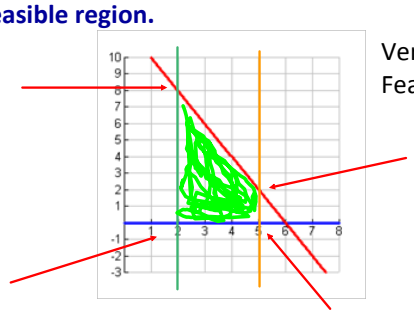
This quantity is expressed as the **objective function.**

Limitations are placed on the variable.

Aug 3-10:04 PM

TESTING VERTICES

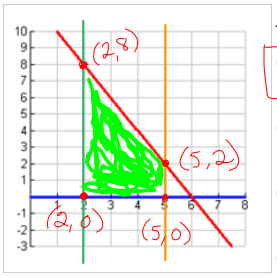
If there is a max or min value of the objective function, it occurs at one or more vertices of the **feasible region.**



Vertices of Feasible Region

Aug 3-10:04 PM

Find the values of x and y that maximize the objective function of P = -x+3y.



Now test the vertices of the feasible region

(2,8) $P = -2+3(8) = 22$

(2,0) $P = -2+3(0) = -2$

(5,0) $P = -5+3(0) = -5$

(5,2) $P = -5+3(2) = 1$

Aug 3-10:04 PM

Graph the system of constraints.
Name all vertices.
Then find the values of x and y that maximize the objective function: C = 3x + y

$x \geq 2$

$y \geq 0$

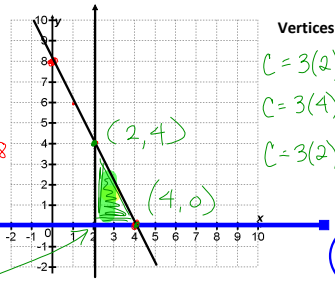
$2x + y \leq 8$

$y \leq -2x+8$

$y = 0$

$(2, 0)$

$x = 2$



Vertices of feasible region:

$C = 3(2)+4 = 10$

$C = 3(4)+0 = 12$

$C = 3(2)+0 = 6$

Max of 12 **at (** 4, 0 **)**

Jan 14-7:39 AM

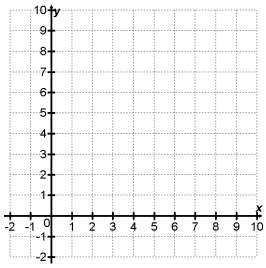
Graph each system of constraints. Name all vertices. Then find the values of x and y that **minimize** and **maximinze** the objective function:

P = 2x + 3y

$x \geq 2$

$y \geq 1$

$x + y \leq 5$



Vertices of feasible region:

Min of _____ at (__ , __)

Max of _____ at (__ , __)

Aug 3-10:04 PM

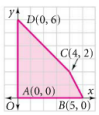
ASSIGNMENT

HW 3.4 p. 142 # 1-7 odd and 19

Aug 3-10:04 PM

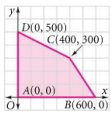
Find the values of x and y that maximize or minimize the objective function for each graph.

1.



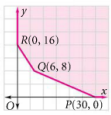
Maximum for $P = 3x + 2y$

2.



Maximum for $P = 7x + 4y$

3.



Minimum for $C = 2x + 3y$

Graph each system of constraints. Name all vertices. Then find the values of x and y that maximize or minimize the objective function.

4. $\begin{cases} x \leq 5 \\ y \leq 4 \\ x \geq 0,\ y \geq 0 \end{cases}$

Maximum for $P = 3x + 2y$

5. $\begin{cases} x + y \geq 8 \\ y \geq 5 \\ x \geq 0 \end{cases}$

Minimum for $P = 3x + 2y$

6. $\begin{cases} x + y \leq 8 \\ 2x + y \leq 10 \\ x \geq 0,\ y \geq 0 \end{cases}$

Maximum for $N = 100x + 40y$

7. $\begin{cases} x + y \geq 6 \\ x \leq 8 \\ y \leq 5 \end{cases}$

Minimum for $C = x + 3y$

8. $\begin{cases} x + 2y \geq 8 \\ x \geq 2 \\ y \geq 0 \end{cases}$

Minimum for $C = x + 3y$

9. $\begin{cases} 2 \leq x \leq 6 \\ 1 \leq y \leq 5 \\ x + y \leq 8 \end{cases}$

Maximum for $P = 3x + 2y$

Sep 27-2:11 PM

18. $\begin{cases} 5x + y \geq 10 \\ x + y \geq 6 \\ x + 4y \geq 12 \\ x \geq 0,\ y \geq 0 \end{cases}$

Minimum for
$C = 10{,}000x + 20{,}000y$

19. $\begin{cases} 6 \leq x + y \leq 13 \\ x \geq 3 \\ y \geq 1 \end{cases}$

Maximum for
$P = 4x + 3y$

Sep 9-4:16 PM