Advanced Algebra
Linear Programming Worksheet

Name: _____

Babich

- Answer the questions and write your answers in the spaces provided. Show your work when appropriate.

1)

a) VARIABLES:

x = Homer Hitter

y = Big Timber

b) OBJECTIVE QUANTITY:

$P = 17x + 29y$

c) CONSTRAINTS:

	H	B
T	8	$5 \leq 80$
F	2	$5 \leq 50$

$8x + 5y \leq 80$

$2x + 5y \leq 50$

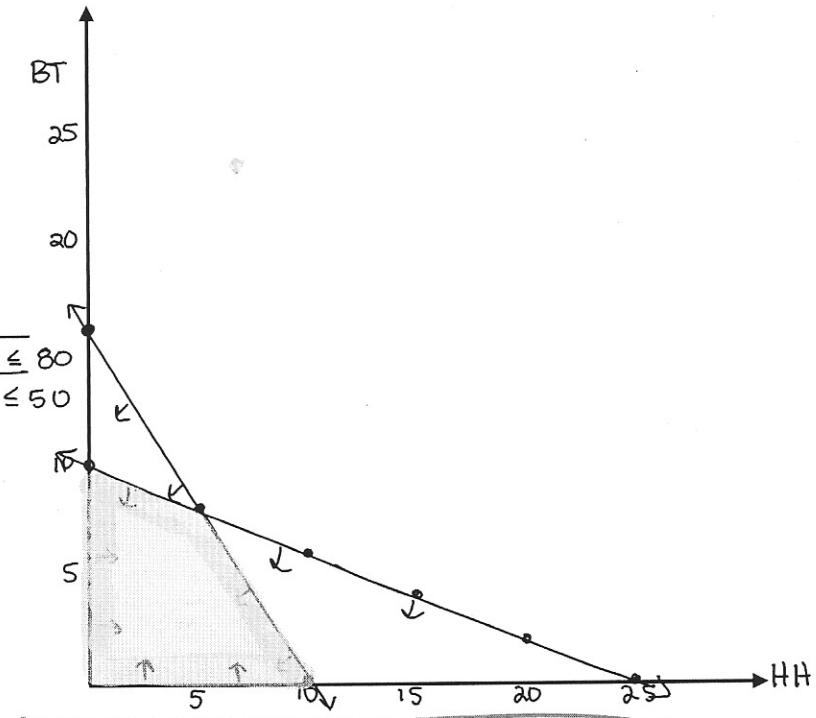
$x \geq 0$

$y \geq 0$

$y \leq -\frac{8}{5}x + 16$

$y \leq -\frac{2}{5}x + 10$

d) GRAPH →



e)

(0,10)	290
(0,0)	0
(10,0)	170
(5,8)	317

5 Homer Hitters & 8 Big Timbers for $317

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2)

a) VARIABLES:

x = _____

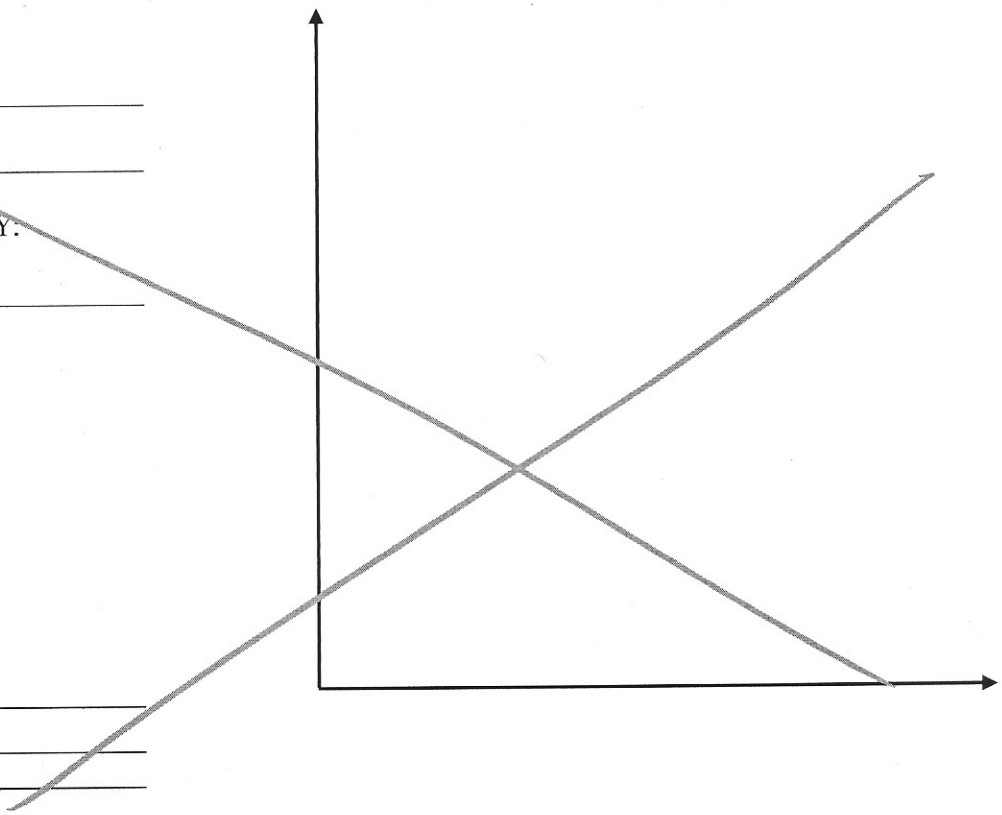
y = _____

b) OBJECTIVE QUANTITY:

_____

c) CONSTRAINTS:

d) GRAPH →



e) _____

_____

_____

3)

a) VARIABLES:

x = console

y = wide screen

b) OBJECTIVE QUANTITY:

$P = 125x + 200y$

c) CONSTRAINTS:

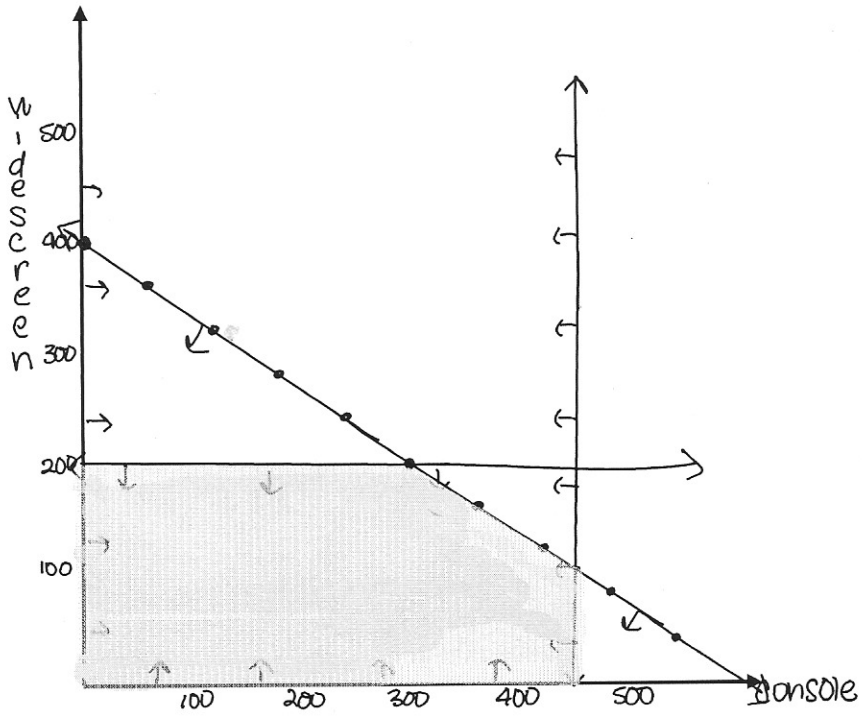
$0 \le x \le 450$

$0 \le y \le 200$

$600x + 900y \le 360{,}000$

$y \le -\frac{2}{3}x + 400$

d) GRAPH →



e)

(0, 200)	40,000
(0, 0)	0
(450, 0)	56,250
(450, 100)	76,250
(300, 200)	77,500

300 consoles and 200 widescreens for $77,500

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4)

a) VARIABLES:

x = jean jackets

y = leather jackets

b) OBJECTIVE QUANTITY:

$P = 20x + 50y$

c) CONSTRAINTS:

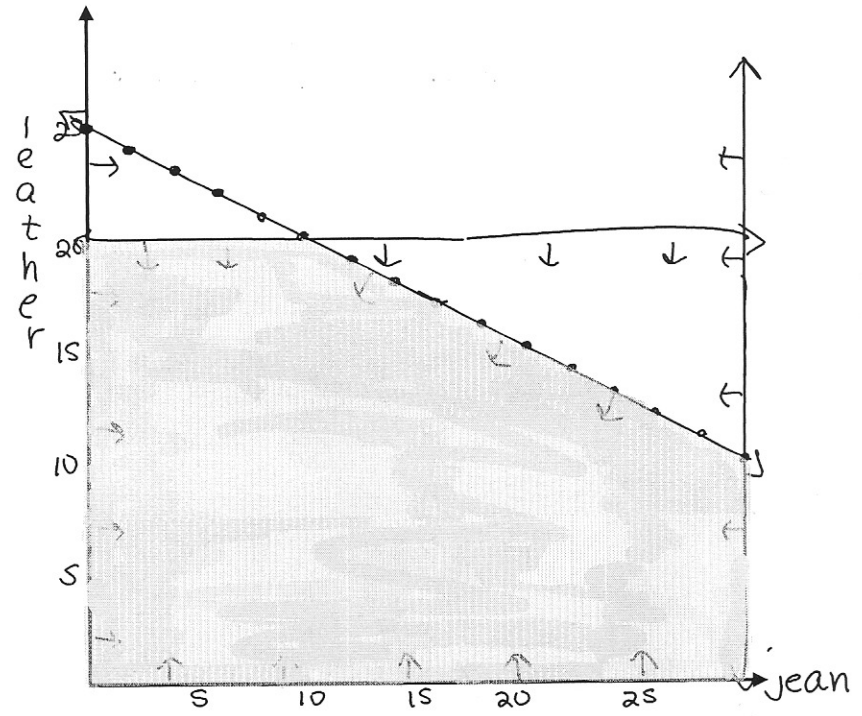
$0 \le x \le 30$

$0 \le y \le 20$

$10x + 20y \le 500$

$y \le -\frac{1}{2}x + 25$

d) GRAPH →



e)

(0, 20)	1000
(0, 0)	0
(30, 0)	600
(30, 10)	1100
(10, 20)	1200

10 jean jackets & 20 leather jackets for $1200

5)

a) VARIABLES:

x = acres of wheat

y = acres of corn

b) OBJECTIVE QUANTITY:

$P = 90x + 120y$

c) CONSTRAINTS:

$x + y \leq 500$

$x + 5y \leq 1480$

$20x + 30y \leq 11400$

$x \geq 0$

$y \geq 0$

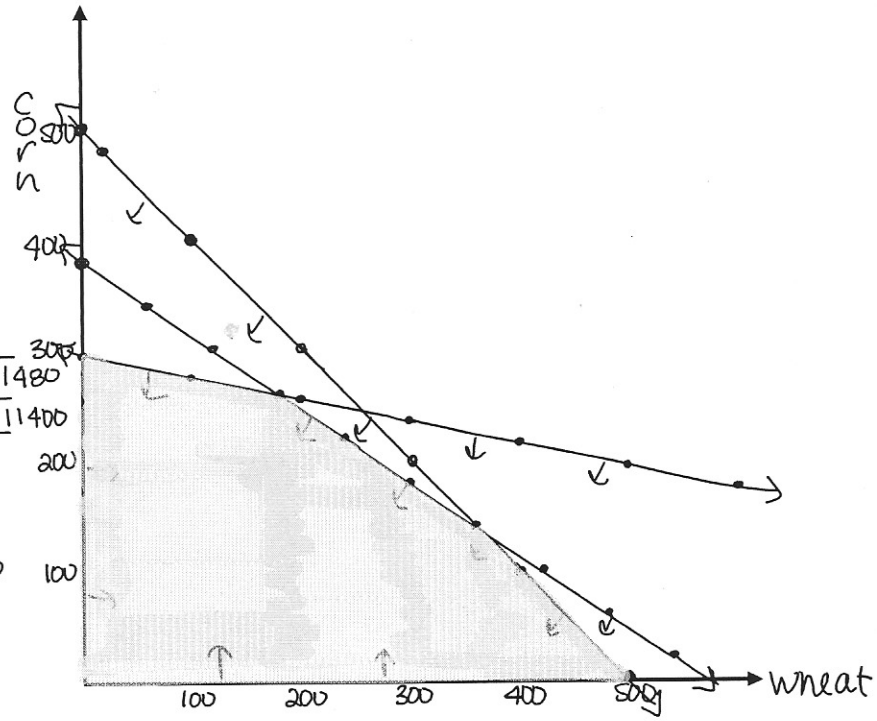
	W	C	
L	1	5	1480
E	20	30	11400

$y \leq -x + 500$

$y \leq -\frac{1}{5}x + 296$

$y \leq -\frac{2}{3}x + 380$

d) GRAPH →



e)

(0, 300)	36,000
(180, 260)	47,400
(360, 140)	49,200
(500, 0)	45,000

360 acres of wheat & 140 acres of corn for $49,200

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6)

a) VARIABLES:

x = trucks

y = cars

b) OBJECTIVE QUANTITY:

$P = 700x + 500y$

c) CONSTRAINTS:

$5x + 2y \leq 180$

$3x + 3y \leq 135$

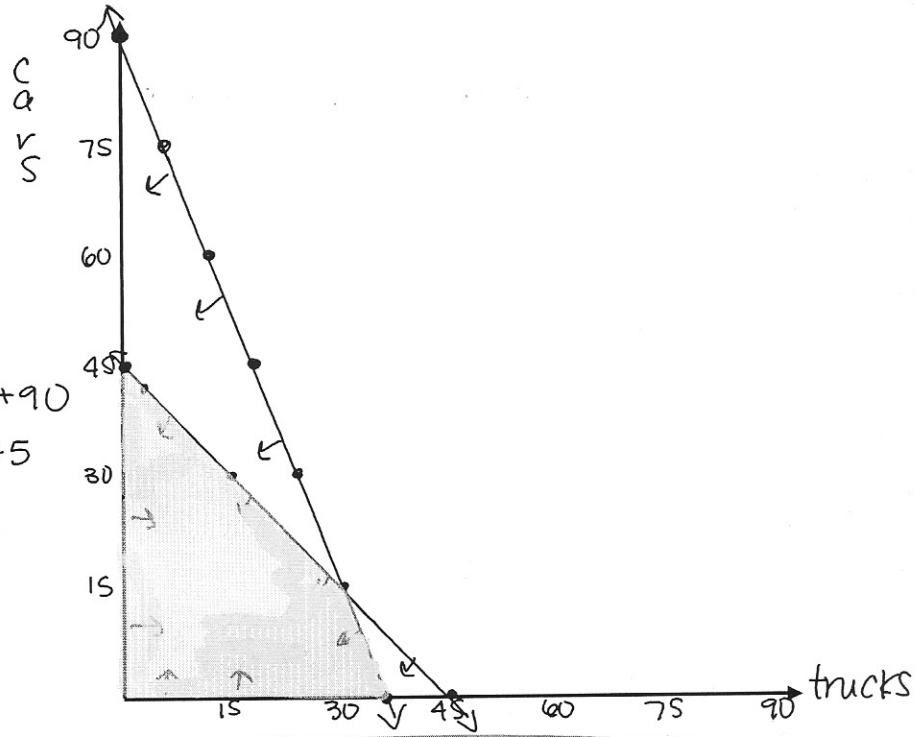
$x \geq 0$

$y \geq 0$

$y \leq -\frac{5}{2}x + 90$

$y \leq -x + 45$

d) GRAPH →



e)

(0, 45)	22,500
(0, 0)	0
(36, 0)	25,200
(30, 15)	28,500

30 trucks & 15 cars for $28,500