

Intermediate Algebra (A)

1.3E Group Practice

Name

Key

Class period 1 2 3 4 5

- 1) TeeVee Electronics, Inc., makes console and wide-screen televisions. The equipment in the factory allows for making at most 450 console televisions and 200 wide-screen televisions in one month. It costs \$600 per unit to make a console television and \$900 per unit to make a wide screen television. During the month of November, the company can spend \$360,000 to make these televisions. TeeVee makes \$125 profit on console television and \$200 on widescreens. How many console and wide-screen televisions should they make to maximize the profit?

	Consoles	Wide-Screen	TOTAL
Cost	\$600	\$900	\$360,000
Max Profit	\$125	\$200	

- a.) Use the table on the left to organize the information (this is optional):

x : # of consoles
 y : # of wide screen

- b.) Constraints:

$$\begin{aligned} 600x + 900y &\leq 360,000 \\ x &\leq 450 \\ y &\leq 200 \\ x &\geq 0 \\ y &\geq 0 \end{aligned}$$

- c.) Graph the constraints to answer the following questions.

- d.) Objective:

$$P = 125x + 200y$$

- e.) Vertices

$$\begin{aligned} (0,0) \quad (300,200) \\ (450,0) \quad (0,200) \\ (450,100) \end{aligned}$$

- f.) Maximum Profit

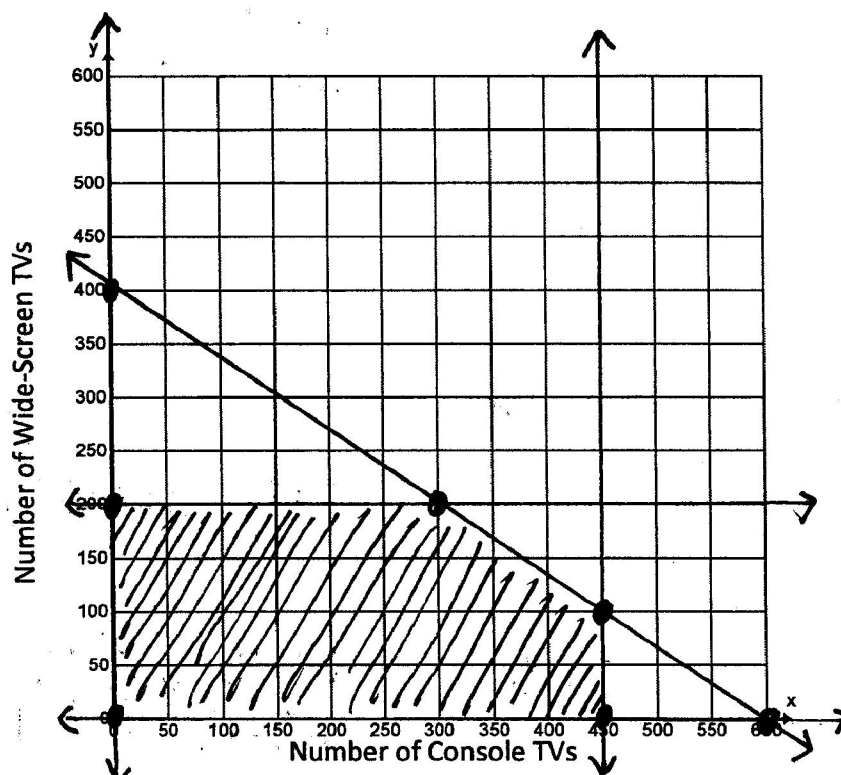
$$\$77,500$$

- g.) # of Console Televisions

$$300 \text{ console TVs}$$

- h.) # of Wide-Screen Televisions

$$200 \text{ wide-screen TVs}$$



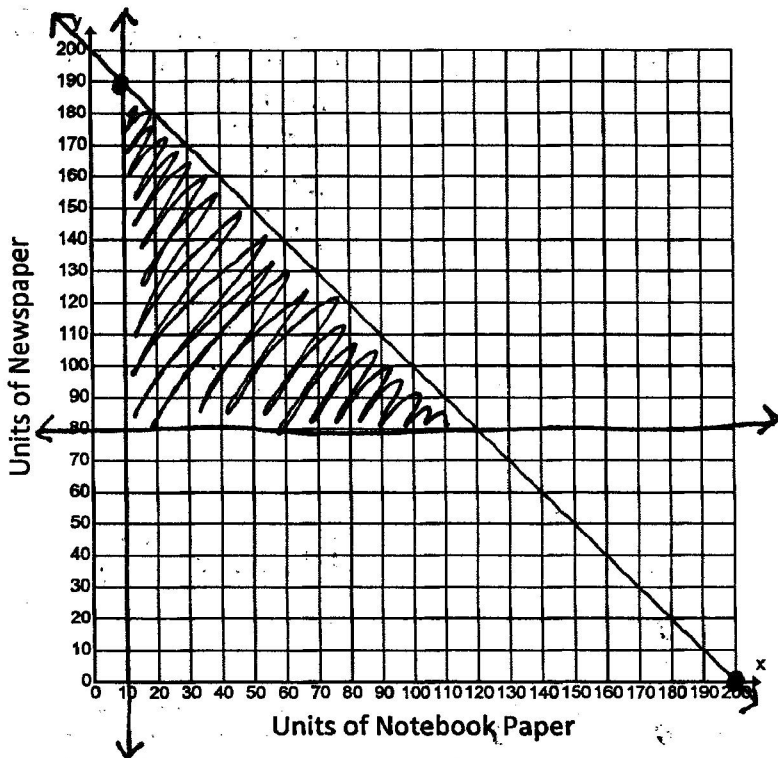
WORK SPACE

(x,y)	Objective Function	Value
(0,200)	$125(0) + 200(200)$	400
(300,200)	$125(300) + 200(200)$	77500
(450,100)	$125(450) + 200(100)$	76250
(450,0)	$125(450) + 200(0)$	56250

1.3E Group Practice

- 2) The Northern Wisconsin Paper Mill can convert wood pulp to either notebook paper or newsprint. The mill can produce at most 200 units of paper a day. At least 10 units of notebook paper and 80 units of newspaper are required daily by regular customers. The profit on a unit of notebook paper is \$500 and the profit on a unit of newsprint is \$350. How many notebook paper and newsprints should they make to maximize the profit?

	notebook	newspaper	TOTAL
# of units	10	80	200
Profit	\$500	\$350	



WORK SPACE

(x,y)	Objective Function	Value
(10, 80)	$500(10) + 350(80)$	\$33,000
(10, 190)	$500(10) + 350(190)$	\$71,500
(120, 80)	$500(120) + 350(80)$	\$88,000

- a.) Use the table on the left to organize the information (this is optional): x : # of units of notebook paper
 b.) Constraints: y : # of units of newspaper

$$\begin{aligned} x &\geq 10 \\ y &\geq 80 \\ x + y &\leq 200 \end{aligned}$$

- c.) Graph the constraints to answer the following questions.

- d.) Objective Function

$$P = \$500x + \$350y$$

- e.) Vertices of feasible region

$$(10, 80) \quad (120, 80) \\ (10, 190)$$

- f.) Maximum Profit

$$\$88,000$$

- g.) Units of Notebook Paper

$$120 \text{ units}$$

- h.) Units of Newspaper

$$80 \text{ units}$$