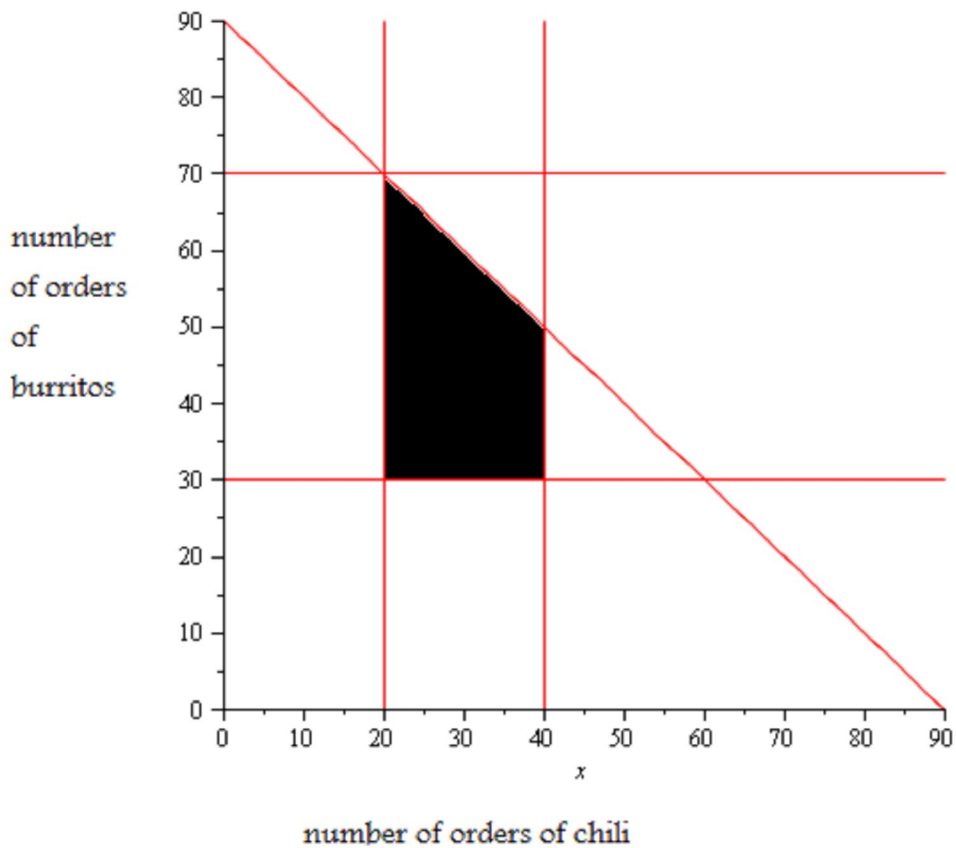


Linear Programming #1-8

1. x – number of orders of chili
 y – number of orders of burritos

Chili: $20 \leq x \leq 40$
 Burritos: $30 \leq y \leq 70$
 Total: $x + y \leq 90$
 Profit: $1.65x + 1.05y$



Profit	(20, 30)	(40, 30)	(40, 50)	(20, 70)
$1.65x + 1.05y$	\$64.5	\$97.5	\$118.5	\$106.5

Need to sell 40 orders of chili and 50 orders of burritos to maximize profit to \$118.50.

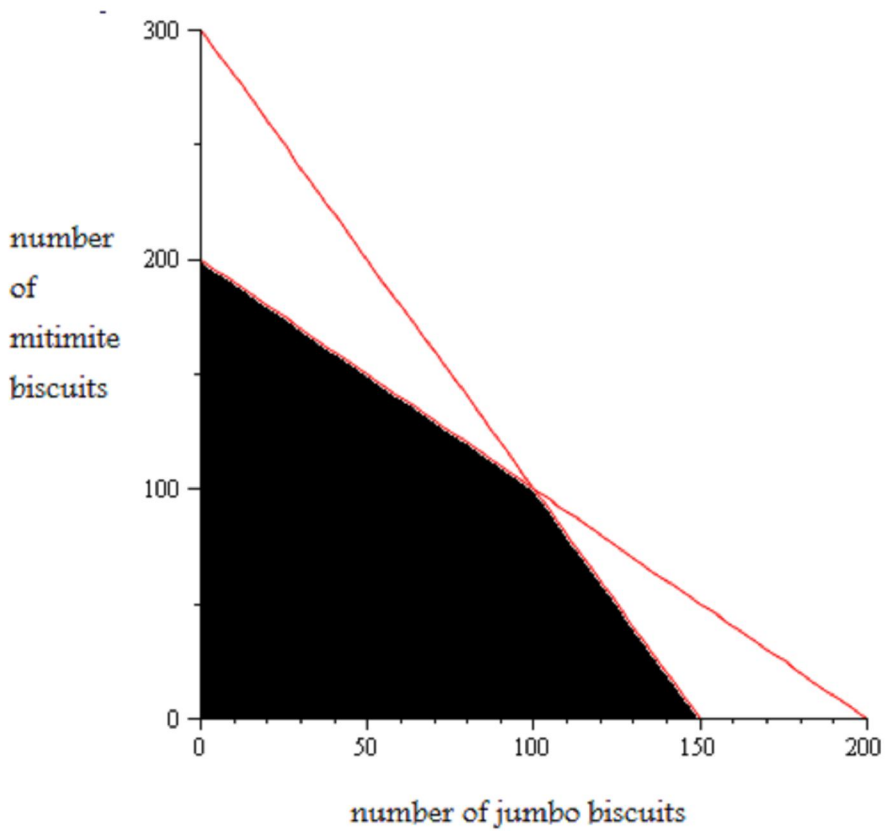
2. x – number of jumbo biscuits
 y – number of mitimite biscuits

Hours: $x + y \leq 200$

Flour: $2x + y \leq 300$

Common Sense: $x \geq 0, y \geq 0$

Profit: $1x + .8y$



Profit	(0, 200)	(150, 0)	(100, 100)	(0, 0)
$1x + .8y$	\$160	\$150	\$180	\$0

Need to sell 100 jumbo biscuits and 100 mitimite biscuits to maximize profit to \$180

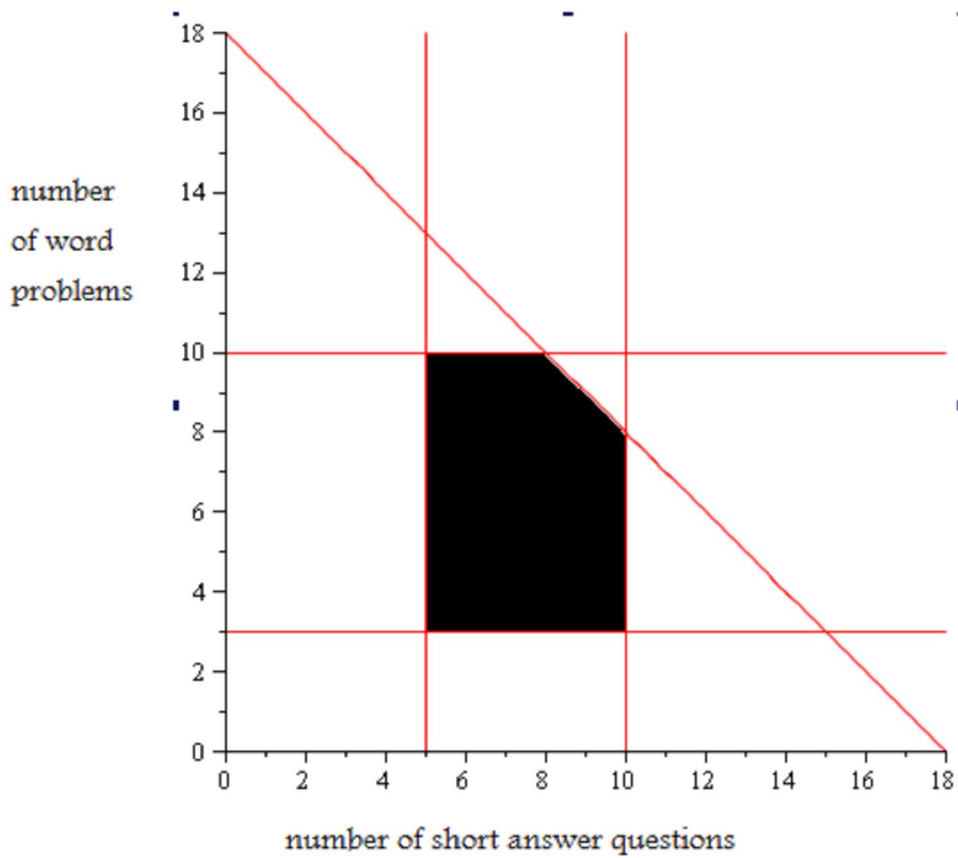
3. x – number of short answer questions
 y – number of word problems

SA: $5 \leq x \leq 10$

WP: $3 \leq y \leq 10$

Total: $x + y \leq 18$

Points: $4x + 7y$



Score	(5, 3)	(5, 10)	(10, 3)	(8, 10)	(10, 8)
$4x + 7y$	41	90	61	102	96

Need to answer 8 short answer questions and 10 word problems to maximize score to 102 points.

4. x – number of computers from West plant
 y – number of computers from East plant

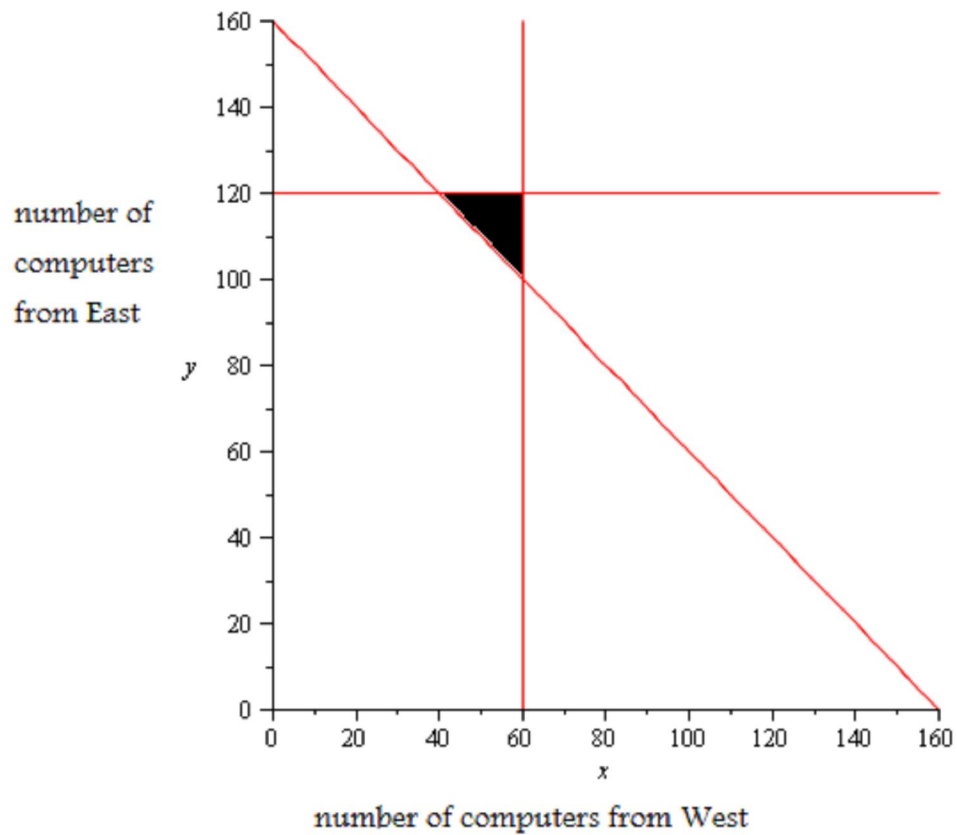
West: $x \leq 60$

East: $y \leq 120$

Total: $x + y \geq 160$

Common Sense: $x \geq 0, y \geq 0$

Cost: $40x + 25y$

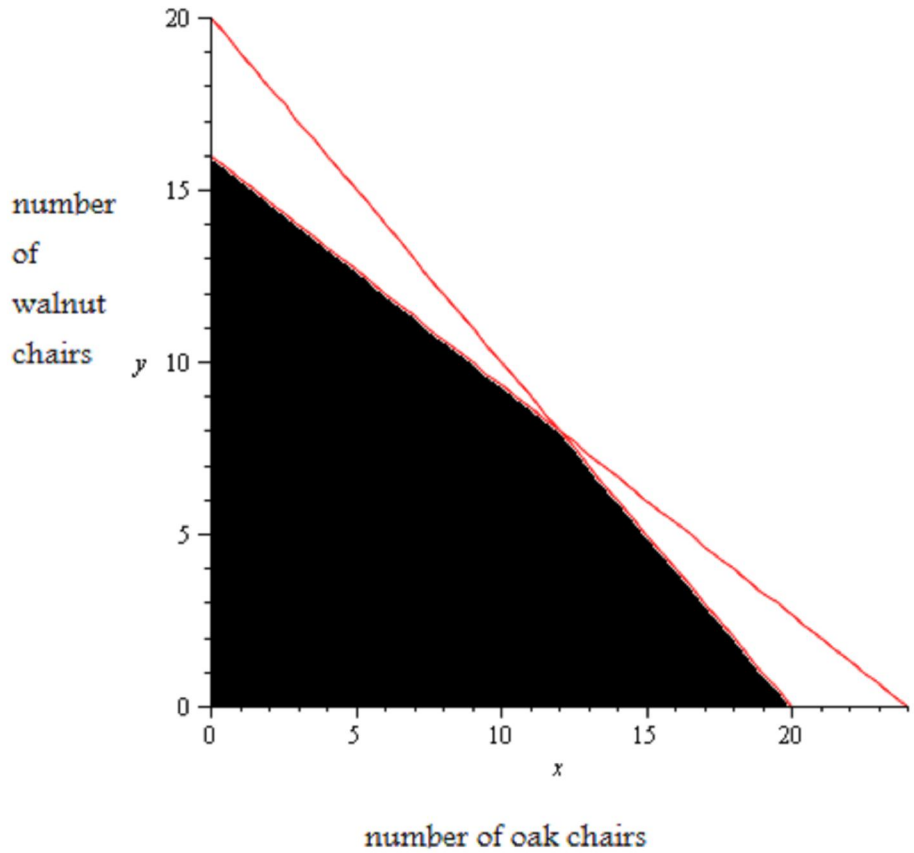


Cost	(40, 120)	(60, 120)	(60, 100)
$40x + 25y$	\$4600	\$5400	\$4900

Need to sell 40 computers from the West and 120 computers from the East to minimize cost to \$4600.

5. x – number of oak chairs
 y – number of walnut chairs

Chairs: $x + y \leq 20$
 Budget: $100x + 150y \leq 2400$
 Common Sense: $x \geq 0, y \geq 0$
 Income: $400x + 500y$

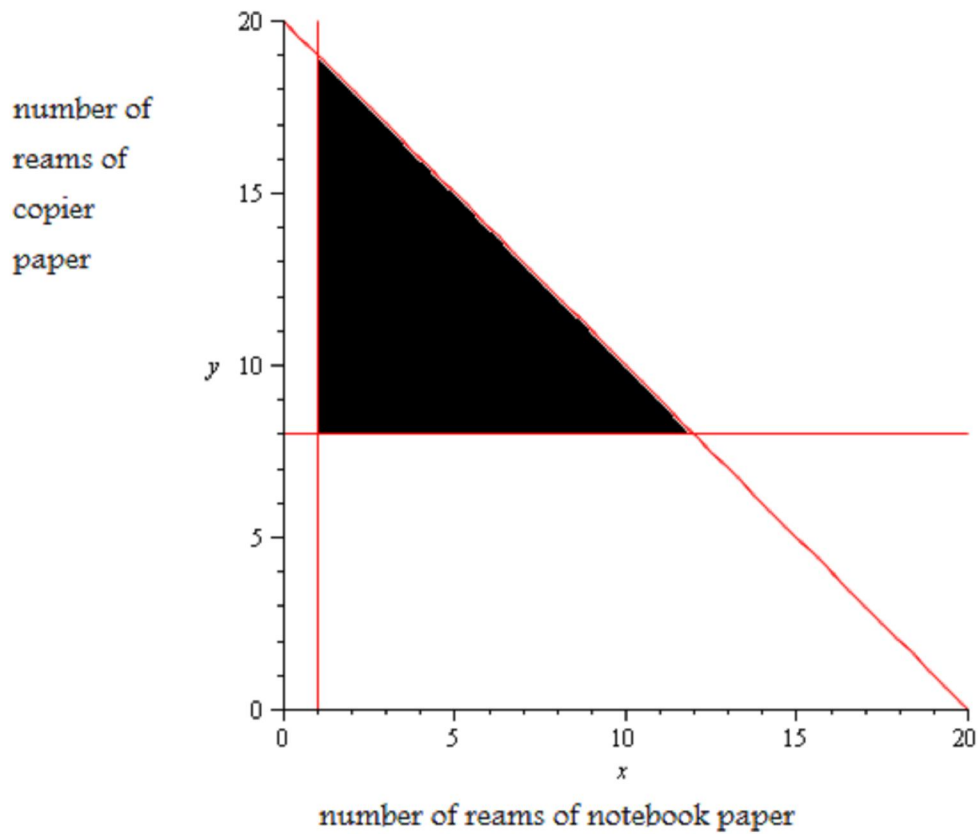


Income	(0, 16)	(20, 0)	(12, 8)	(0, 0)
$400x + 500y$	\$8000	\$8000	\$8800	\$0

Need to sell 12 oak chairs and 8 walnut chairs to maximize profit to \$8800.

6 . x – number of reams of notebook paper
 y – number of reams of copier paper

Total: $x + y \leq 20$
 Notebook: $x \geq 1$
 Copier: $y \geq 8$
 Profit: $50x + 35y$



Profit	$(1, 19)$	$(1, 8)$	$(12, 8)$
$50x + 35y$	\$715	\$330	\$880

Need to sell 12 reams of notebook paper and 8 reams of copier paper to maximize profit to \$880.

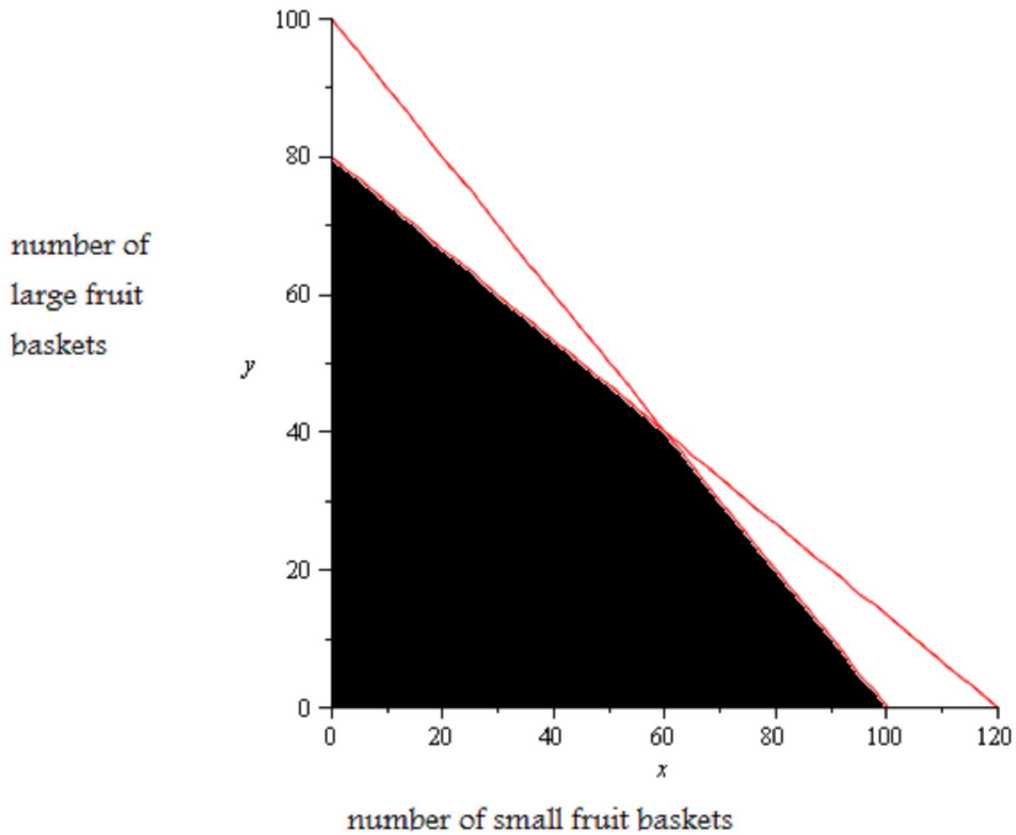
7. x – number of small fruit baskets
 y – number of large fruit baskets

Total: $x + y \leq 100$

Cost: $10x + 15y \leq 1200$

Common Sense: $x \geq 0, y \geq 0$

Profit: $6x + 10y$



Profit	(0, 80)	(100, 0)	(60, 40)	(0, 0)
$400x + 500y$	\$800	\$600	\$760	\$0

Need to sell 80 large fruit baskets and 0 small fruit baskets to maximize profits to \$800.

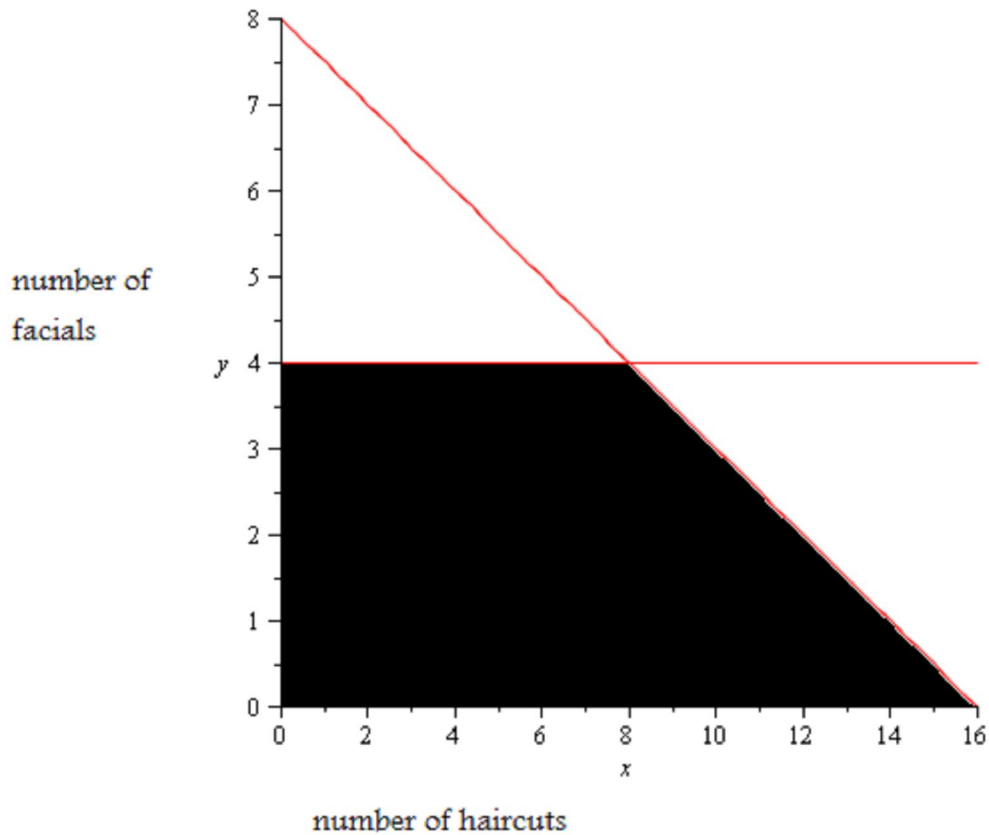
8. x – number of haircuts
 y – number of facials

Time: $.5x + y \leq 8$

Facials: $y \leq 4$

Common Sense: $x \geq 0, y \geq 0$

Profit: $20x + 45y$



Income	(0, 0)	(0, 4)	(8, 4)	(16, 0)
$20x + 45y$	\$0	\$180	\$340	\$320

Need to do 8 haircuts and 4 facials to maximize income to \$340.