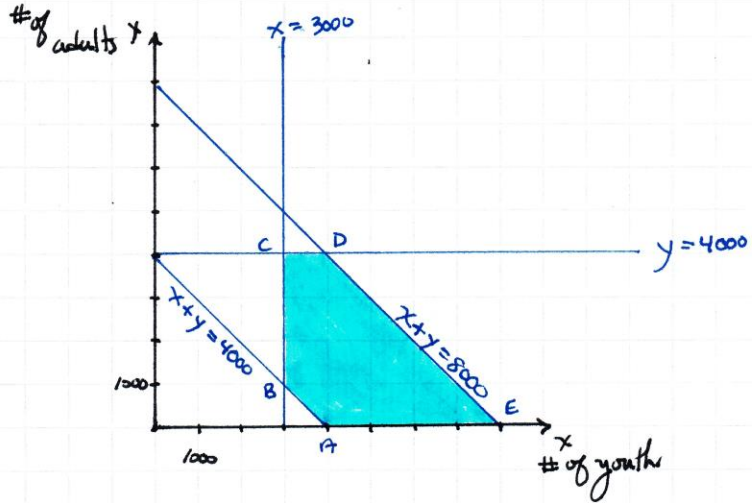


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6. x : # of youths
 y : # of adults

$$\begin{aligned} x &\geq 0 \\ y &\geq 0 \\ x + y &\leq 8000 \\ x &\geq 3000 \\ y &\leq 4000 \\ x + y &\geq 4000 \end{aligned}$$



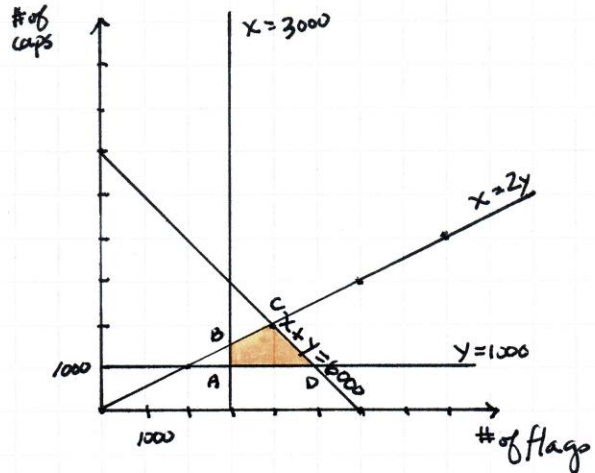
$$N = 15x + 25y - \$20000$$

Answer: \$ 140 000

Vertices	$N = 15x + 25y - 20000$
A (3000, 0)	\$ 40 000
B (3000, 1000)	50 000
C (3000, 4000)	125 000
D (4000, 4000)	140 000
E (8000, 0)	100 000

7. x : # of flags sold
 y : # of caps sold

$$\begin{aligned} x &\geq 0 \\ y &\geq 0 \\ x + y &\leq 6000 \\ x &\geq 3000 \\ y &\geq 1000 \\ x &\geq 2y \end{aligned}$$



$$P = 15x + 12y$$

$$\begin{array}{l} B: \quad x = 2y \\ \quad \underline{x = 3000} \\ \quad 3000 = 2y \\ \quad 1500 = y \end{array}$$

Vertices	$P = 15x + 12y$
A (3000, 1000)	\$ 57 000
B (3000, 1500)	63 000
C (4000, 2000)	84 000
D (5000, 1000)	87 000

Answer: 5000 flags and 1000 caps.

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x : # of cookies
 y : # of muffins

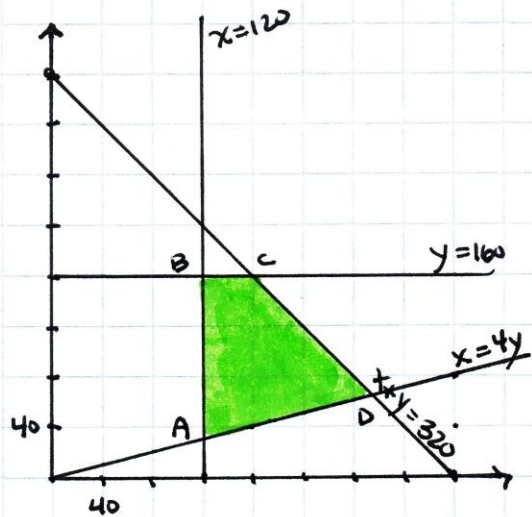
Laura: $P = 2x + 3y$

Vertices	$P = 2x + 3y$
(120, 0)	\$ 240
(40, 80)	320
(80, 160)	640
(200, 120)	760
(200, 0)	400

Maximum Profit: \$760.00

Russ:
 $x \geq 0$
 $y \geq 0$
 $x + y \leq 320$
 $x \geq 120$
 $y \leq 160$
 $x \leq 4y$

$P = 2.50x + 2.50y$



A: $x = 4y \Rightarrow 120 = 4y$
 $x = 120 \quad 30 = y$

D: $x = 4y$
 $x + y = 320$
 $4y + y = 320$
 $5y = 320$
 $y = 64$
 $x = 4(64)$
 $x = 256$

check: $256 + 64 = 320$

Vertices	$P = 2.50x + 2.50y$
A (120, 30)	\$ 375
B (120, 160)	700
C (160, 160)	800
D (256, 64)	800

Maximum profit: \$800.00

$800 > 760$

Answer: Accept Russ' proposition