Consolidation 1.4

#5. x: # of mirrors
y: # of stained glass

$x \geq 0$

$y \geq 0$

~~$2x \geq y$~~ ~~$x \leq 2y$~~ ① $x \geq 2y$

x	y
0	0
10	5

$2x + 4y \leq 40$ ②

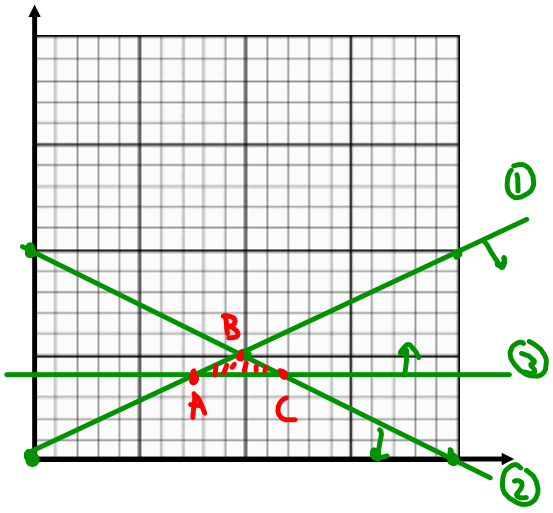
x	y
0	10
20	0

$4y \geq 16$ ③

$4y = 16$

$y = 4$

x	y
0	4
5	4



Vertices: Pt. A $x = 2y$ and $y = 4$

$x = 2(4)$

$x = 8$

$A(8, 4)$

Pt. B $x = 2y$ $2x + 4y = 40$

$2(2y) + 4y = 40$

$8y = 40$

$y = 5$

$x = 2(5)$

$x = 10$

$B(10, 5)$

Pt. C $2x + 4y = 40$ $y = 4$

$2x + 4(4) = 40$

$2x + 16 = 40$

$2x = 24$

$x = 12$

$C(12, 4)$

Function to be optimized:

$R = 110x + 195y$ MAX

A $(8,4)$ $R = 110(8) + 195(4) = 1660$

B $(10,5)$ $R = 110(10) + 195(5) = 2075$

C $(12,4)$ $R = 110(12) + 195(4) = 2100$

She should make 12 mirrors and 4 stained glass windows.