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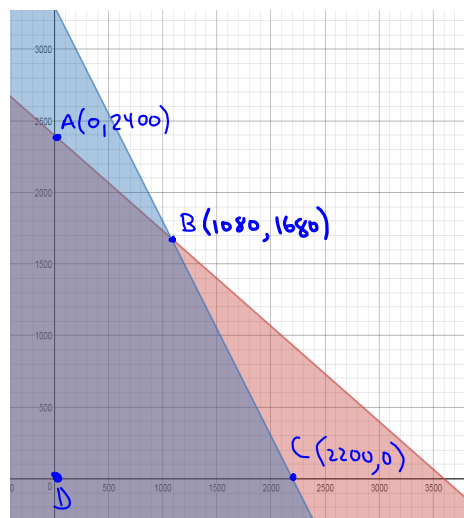
12.  $x$ : # of screws made in each workshop  
 $y$ : # of bolts made in each workshop

$$R = (0.20x + 0.15y) \times 2$$

$$3x + 4.5y \leq 180(60) \Rightarrow 3x + 4.5y \leq 10800$$

$$6x + 4y \leq 220(60) \Rightarrow 6x + 4y \leq 13200$$

$$\left. \begin{matrix} x \geq 0 \\ y \geq 0 \end{matrix} \right\} \text{non-negative constraints}$$



Point B:  $3x + 4.5y = 10800$  ①  $\times 2$   $6x + 9y = 21600$   
 $6x + 4y = 13200$  ②  $- \quad \underline{6x + 4y = 13200}$   
 $5y = 8400$

$$y = 1680$$

$$3x + 4.5(1680) = 10800$$

$$3x + 7560 = 10800$$

$$3x = 3240$$

$$x = 1080$$

$$B(1080, 1680)$$

$$R = 0.4x + 0.3y$$

$$A \quad R = 0.4(0) + 0.3(2400) = 720$$

$$B \quad R = 0.4(1080) + 0.3(1680) = 936 \leftarrow \text{Max}$$

$$C \quad R = 0.4(2200) + 0.3(0) = 880$$