

$$1- b(10) = -300$$

$$10 \times 100 = 1000$$

$$-300 \times 100 = -30000$$

pour 1000 lampes produites la perte est de  
30 000 €

$$2- 530 \times 100 = 53000$$

→ Bénéfice max de 53 000 €

$$26,5 \times 100 = 2650$$

→ Par 2650 lampes

$$3a- (x-40)(-3x+40)$$

$$= -3x^2 + 40x + 120x - 1600$$

$$= -3x^2 + 160x - 1600$$

$$= b(x)$$

$$3b.$$

$$(x-40)(-3x+40)=0 \quad \left| \begin{array}{l} -3x+40=0 \\ -3x=-40 \\ x=\frac{-40}{-3}=\frac{40}{3} \end{array} \right.$$

$$x-40=0$$

$$x=40$$

$$S = \left\{ \frac{40}{3}, 40 \right\}$$

3c.

$$b(x) = -3x^2 + 160x - 1600$$

$$b'(x) = 2x(-3x) + 160 + 1$$

$$b(x) = -3x^2 + 160x - 1600$$

$$b'(x) = -6x + 160$$

$$-6x + 160 = 0$$

$$-160 \quad -160$$

$$-6x = -160$$

$$x = \frac{-160}{-6} = \frac{160}{6} \approx 26,7$$

|         |   |                 |           |
|---------|---|-----------------|-----------|
| $x$     | 0 | $\frac{160}{6}$ | $+\infty$ |
| $f'(x)$ | + | 0               | -         |
| $f(x)$  |   |                 |           |

$$f\left(\frac{160}{6}\right) = -3 \left(\frac{160}{6}\right)^2 + 160 \times \frac{160}{6} - 1600$$

$$= \frac{1600}{3}$$

$$\approx 533$$