$$r = \frac{n \times \Sigma xy - \Sigma x \times \Sigma y}{\sqrt{\left(n\Sigma x^2 - (\Sigma x)^2\right) \times \left(n\Sigma y^2 - (\Sigma y)^2\right)}} =$$

$$= \frac{10 \times 8691 - 336 \times 261}{\sqrt{\left(10 \times 11,450 - 336^2\right) \times \left(10 \times 6,907 - 261^2\right)}} = \frac{86,910 - 87,696}{\sqrt{1,604 \times 949}}$$

$$= \frac{-786}{\sqrt{1,522,196}} = \frac{-786}{1,233.8} = -0.64$$ ← negative

(c) $$b = \frac{n\Sigma xy - \Sigma x \times \Sigma y}{n\Sigma x^2 - (\Sigma x)^2}$$

$$= \frac{-786}{10 \times 11,450 - 336^2} = \frac{-786}{1,604} = -0,49$$

$$a = \frac{\Sigma y}{n} - b \times \frac{\Sigma x}{n} = \frac{261}{10} + 0,49 \times \frac{336}{10}$$

$$= 26,1 + 16,46 = 42.56$$

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$y = 42.56 + 0.49x$

~~Price~~ ~~Production ('000s/day)~~ $= 42.56 - 0.49 \times$ ~~price~~ production ('000s/day)

(d) range

27 ('000s/day) ——— 37 ('000s/day)

(i) ~~predicted production ('000s/day)~~ price $= 42.56 - 0.49 \times 31$

$= 42.56 - 15.19 = 27.4$ i.e. 27[illegible]

(ii) N/A

Since 50,000 lies outside the range of original data any prediction would be unreliable.