

$$r = \frac{n \sum xy - \sum x \times \sum y}{\sqrt{(n \sum x^2 - (\sum x)^2) \times (n \sum y^2 - (\sum y)^2)}} = \frac{10 \times 8691 - 336 \times 261}{\sqrt{(10 \times 11,450 - 336^2) \times (10 \times 6,907 - 261^2)}} = \frac{86,910 - 87,696}{\sqrt{1,604 \times 949}}$$

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

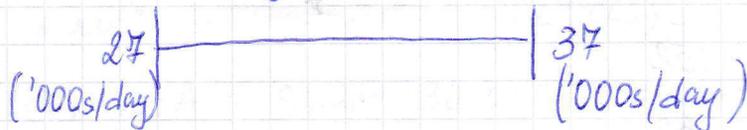
(c) 
$$b = \frac{n \sum xy - \sum x \times \sum y}{n \sum x^2 - (\sum x)^2} = \frac{-786}{10 \times 11,450 - 336^2} = \frac{-786}{1,604} = -0.49$$

$$a = \frac{\sum y}{n} - b \times \frac{\sum x}{n} = \frac{261}{10} + 0.49 \times \frac{336}{10}$$

$$= 26.1 + 16.46 = 42.56$$

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

(d) range



(i) predicted production ('000s/day) price =  $42.56 - 0.49 \times 31$   
 $= 42.56 - 15.19 = 27.4$  i.e. ~~27~~

(ii) N/A

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

Preview from Notesale.co.uk  
Page 8 of 10