

BÀI 1414.1

1) SS' liệu mẫu.  $n = 25$ ,  $a = 64,5292$   
 $b = 0,5603$

$$s_x^2 = 97,3618 ; s_y^2 = 133,6492$$

$$\sum_{i=1}^n x_i^2 = 26581,63$$

$$S_{xx} = (n-1) s_x^2 = 2336,6832$$

$$S_{yy} = (n-1) \cdot s_y^2 = 4791,4608$$

$$S_{xy} = b \cdot S_{xx} = 1310,6456$$

$$\Rightarrow S = \sqrt{\frac{S_{yy} - b \cdot S_{xy}}{n-2}} = 13,2801$$

$$\text{Với } \alpha = 0,02 \Rightarrow \frac{\alpha}{2} = 0,005$$

$$\therefore t_{\alpha/2} = 2,807$$

01. Khoảng tin cậy 95% cho  $\alpha$

$$a - t_{\alpha/2} \cdot S \sqrt{\sum_{i=1}^n x_i^2} < \alpha < t_{\alpha/2} \cdot S \sqrt{\sum_{i=1}^n x_i^2}$$

$$\Rightarrow 38,3782 < \alpha < 89,6767$$

b) Khoảng tin cậy 99% cho  $\beta$

$$b - \frac{t_{\alpha/2} \cdot s}{\sqrt{s_{xx}}} < \beta < b + \frac{t_{\alpha/2} \cdot s}{\sqrt{s_{xx}}}$$

19.2

Số liệu mẫu:  $n = 12$ ;  $a = 42,5848$

$$b = -0,6861$$

$$S_x^2 = 3,5133; S_y^2 = 4,2861$$

$$\bar{x} = 25,9667$$

$$S_{xx} = (n-1) \cdot S_x^2 = 43,0463$$

$$S_{yy} = (n-1) \cdot S_y^2 = 42,1471$$

$$S_{xy} = b \cdot S_{xx} = -23,5341$$

$$s = \sqrt{\frac{S_{yy} - b \cdot S_{xy}}{n-2}} = 1,6336$$

$$U_{0,5} (1-\alpha) \% = 95\%$$

$$\Rightarrow \frac{\alpha}{2} = 0,025$$

$$\Rightarrow t_{\alpha/2} = 2,227$$

pt đường hồi quy tuyến tính:

$$\hat{y} = 42,5848 + 0,6861x$$

Uới  $x = 24,5 \Rightarrow \hat{y}_0 = 25,4724$

$$\text{a) } \hat{y} - t_{\alpha/2} \cdot s \sqrt{\frac{1}{n} + \frac{(x_0 - \bar{x})^2}{s_{xx}^2}} < \mu_{y|x_0}$$

$$< \hat{y} + t_{\alpha/2} \cdot s \sqrt{\frac{1}{n} + \frac{(x_0 - \bar{x})^2}{s_{xx}^2}}$$

$\Rightarrow$  Khoảng tin cậy 95% :

với  $x_0 = 24,5$

$$\therefore 24,9386 < \mu_{y|x_0} < 27,1062$$

b) Khoảng дов беіс 95%

với  $x_0 = 24,5$

$$\hat{y}_0 - t_{\alpha/2} \cdot s \sqrt{\frac{1}{n} + \frac{(x_0 - \bar{x})^2}{s_{xx}^2}} < y_0 < \hat{y}_0 + t_{\alpha/2} \cdot s \sqrt{\frac{1}{n} + \frac{(x_0 - \bar{x})^2}{s_{xx}^2}}$$

$$t_{\alpha/2} \cdot s \cdot \sqrt{\frac{1}{n} + \frac{(x_0 - \bar{x})^2}{s_{xx}^2}}$$

$$\therefore 21,8885 < y_0 < 29,6613$$

14.3Số liệu mẫu:  $n = 12$ ,  $a = 5,8254$ 

$$b = 0,5676$$

$$S_x^2 = 684,8529 ; S_y^2 = 230,1096$$

$$\bar{x} = 37,5$$

$$S_{xx} = (n-1) S_x^2 = 11812,4898$$

$$S_{yy} = (n-1) S_y^2 = 3311,7782$$

$$S = \sqrt{\frac{S_{yy} - b \cdot S_{xy}}{n-2}} = 2,5757$$

$$\text{Với } \alpha = 0,01 \Rightarrow \frac{\alpha}{2} = 0,005$$

$$\Rightarrow t_{\alpha/2} = 2,921$$

b, pt đường hồi quy:

$$\hat{y} = 5,8254 + 0,5676x$$

$$\text{Tại } x = 50 \Rightarrow \hat{y} = 34,2054$$

Khoảng tin cậy 95%

$$\hat{y}_0 - t_{\alpha/2} \cdot S \cdot \sqrt{\frac{1}{n} + \frac{(x_0 - \bar{x})^2}{S_{xx}}} < \mu_{y|x_0} < \hat{y}_0 +$$

$$t_{\alpha/2} \cdot S \cdot \sqrt{\frac{1}{n} + \frac{(x_0 - \bar{x})^2}{S_{xx}}}$$

$$\Rightarrow 32,2322 < \mu_{y|x_0} < 36,1786$$

b) Khoảng địt bao 99% :

$$\hat{y}_0 - t_{12} \cdot s \cdot \sqrt{1 + \frac{1}{n} + \frac{(x_0 - \bar{x})^2}{S_{xx}}} < y_0 < \hat{y}_0$$

$$+ t_{12} \cdot s \cdot \sqrt{1 + \frac{1}{n} + \frac{(x_0 - \bar{x})^2}{S_{xx}}}$$

$$26,4273 < y_0 < 41,8835$$

14.4

Số liệu mẫu :  $n = 9$ ;  $a_0 = 9,0009$

$$b = -0,0945$$

$$\bar{x} = 34,1111$$

$$\sum_{i=1}^n x_i = 307 ; \sum_{i=1}^n y_i = 52 ; \sum_{i=1}^n x_i y_i = 1693$$

$$\sum_{i=1}^n u_i^2 = 11827$$

$$S_{xx} = (n-1) S_x^2 = 854,8888$$

$$S_{yy} = (n-1) S_y^2 = 15,5552$$

$$S_{xy} = b \cdot S_{xx} = -80,7870$$

$$s = \sqrt{\frac{S_{yy} - b \cdot S_{xy}}{n-2}} = 1,0637 \quad (5)$$

oigt đđg h̄i quy tuyen t̄i

$$\hat{y} = 9,0009 - 0,0345x$$

$$b, x=32 \Rightarrow \hat{y}_0 = 5,9769$$

$$\text{Với } \alpha = 0,05 \Rightarrow \frac{\alpha}{2} = 0,025$$

$$\Rightarrow t_{\alpha/2} = 2,365$$

Khoảng tin cậy cho NS ... với tinh cậy 95% là:

$$\hat{y}_0 + -t_{\alpha/2} \cdot s \sqrt{\frac{1}{n} + \frac{(x_0 - \bar{x})^2}{S_{xx}}} < \mu_{y|x_0} <$$

$$\hat{y}_0 + t_{\alpha/2} \cdot s \sqrt{\frac{1}{n} + \frac{(x_0 - \bar{x})^2}{S_{xx}}}$$

$$\Rightarrow 5,1183 < \mu_{y|x_0} < 6,8349$$

c, Khoảng tin cậy cho ... với tinh cậy 95% :

$$\hat{y}_0 + t_{\alpha/2} \cdot s \sqrt{1 + \frac{1}{n} + \frac{(x_0 - \bar{x})^2}{S_{xx}}} < y_0 <$$

$$\hat{y}_0 + t_{\alpha/2} \cdot s \sqrt{1 + \frac{1}{n} + \frac{(x_0 - \bar{x})^2}{S_{xx}}}$$

$$\Rightarrow 3,819 < y_0 < 8,6848$$

(6)

$$d, n = -0,7005$$

14.5:

Giả:  $X$  là kích thước,  $y$  là  
 $y$  là thời gian

Số liệu mẫu:  $n = 9$ ,  $\bar{x} = 29,6333$

$$\sum_{i=1}^n x_i = 266,7$$

$$\sum_{i=1}^n y_i = 32,68$$

$$\sum_{i=1}^n x_i^2 = 7880,83$$

$$\sum_{i=1}^n x_i y_i = 890,268$$

$$S_x^2 = 9,7025 \Rightarrow S_{xx} = (n-1) \cdot S_x^2 = 77,62$$

$$S_y^2 = 1,2484 \Rightarrow S_{yy} = (n-1) \cdot S_y^2 = 3,9952$$

$$a, b = 0,28815 ; \quad \cancel{a = -4,7109} \quad a = -4,7109$$

pt đồng bậc quy:

$$\hat{y} = -4,7109 + 0,28815x$$

$$b, Vết x = 0,65 \Rightarrow \frac{x}{2} = 0,025 \Rightarrow t_{x/2} = 2,365$$

$$\text{Tại } x_0 = 38 \Rightarrow \hat{y}_0 = 5,1416$$

$$S = \sqrt{\frac{S_{yy} - b^2 \cdot S_{xx}}{n-2}} = 0,7141$$

⇒ Khoảng tin cậy 95% ..

(2)

$$\hat{y}_0 - t_{\alpha/2} \cdot s \cdot \sqrt{\frac{1}{n} + \frac{(x_0 - \bar{x})^2}{s_{xx}}} < \mu_{y|x_0} <$$

$$\hat{y}_0 + t_{\alpha/2} \cdot s \cdot \sqrt{\frac{1}{n} + \frac{(x_0 - \bar{x})^2}{s_{xx}}}$$

$$\Rightarrow 3,9246 < \mu_{y|x_0} < 6,3526$$

c, khoảng dự đoán 95%:

$$\hat{y}_0 - t_{\alpha/2} \cdot s \cdot \sqrt{1 + \frac{1}{n} + \frac{(x_0 - \bar{x})^2}{s_{xx}}} < y_0 <$$

$$\hat{y}_0 + t_{\alpha/2} \cdot s \cdot \sqrt{1 + \frac{1}{n} + \frac{(x_0 - \bar{x})^2}{s_{xx}}}$$

$$\Rightarrow 3,0018 < y_0 < 7,2754$$