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|--------|----|----|----|----|----|----|----|
| years | 22 | 14 | 31 | 36 | 9 | 41 | 19 |
| Damage | 20 | 14 | 54 | 63 | 17 | 71 | 23 |

[illegible]

A blank coordinate grid with x and y axes. The grid is 10 units wide and 10 units high. The x-axis is horizontal and the y-axis is vertical. The origin (0,0) is at the bottom-left corner. The x-axis is labeled from 0 to 10, and the y-axis is labeled from 0 to 10. The grid lines are spaced at 1-unit intervals.

$$(b) r = \frac{\sum xy - (\sum x)(\sum y)}{\sqrt{n(\sum x^2) - (\sum x)^2} \sqrt{n(\sum y^2) - (\sum y)^2}} = r = 0.9562$$

- $H_0 \rho = 0$ There is no correlation between x and y in the population (not significant)**

H_a $\rho \neq 0$ There is a correlation between x and y in the population (significant

$$\overline{0} \qquad CV = \qquad 1$$

Conclusion:

If r is significant, find the equation of the line

$$m = \frac{n(\sum xy) - (\sum x)(\sum y)}{n(\sum x^2) - (\sum x)^2}, \quad \text{y-intercept } b_0 = \bar{y} - m\bar{x},$$

$$\bar{x} = \frac{\sum x}{n} \quad \text{and} \quad \bar{y} = \frac{\sum y}{n}$$

Equation of the line

$$\hat{y} = b_0 + mx$$

- (d) Predict percentage damage of the lungs when $x = 15$ years and $x = 43$ years

- [illegible]

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|-----------|----|----|----|----|----|----|
| Age | 18 | 26 | 39 | 48 | 53 | 58 |
| Sick days | 16 | 12 | 9 | 5 | 6 | 2 |

[illegible]

A blank coordinate grid with x and y axes. The grid is 10 units wide and 10 units high. The x-axis is labeled 'x' at the right end, and the y-axis is labeled 'y' at the top end. The origin is at the bottom-left corner. The grid lines are spaced at 1-unit intervals.

$$(b) \ r = \frac{\sum xy - (\sum x)(\sum y)}{\sqrt{n(\sum x^2) - (\sum x)^2} \sqrt{n(\sum y^2) - (\sum y)^2}}$$

$H_0 \rho = 0$ There is no correlation between x and y in the population (not significant)

$H_a: \rho \neq 0$ There is correlation between x and y in the population (significant)

$$\overline{-1} \quad CV = \quad 0$$

Conclusion:

If r is significant, find the equation of the line

$$m = \frac{n(\sum xy) - (\sum x)(\sum y)}{n(\sum x^2) - (\sum x)^2}, \quad \text{y-intercept } b_0 = \bar{y} - m\bar{x},$$

$$\bar{x} = \frac{\sum x}{n} \quad \text{and} \quad \bar{y} = \frac{\sum y}{n}$$

Equation of the line

$$\hat{y} = b_0 + mx$$

(d) Predict number of sick days when $x = 22$ years and $x = 60$ years

(e) Residual value = y-value – predicted value

[illegible]

