Practice worksheet | Statistics and regression

Least-squares regression

Name: _____ Date: _____

6 questions | 18 marks

1. Find the line from $\bar{x} = 6, \bar{y} = 20, S_{xx} = 10$ and $S_{xy} = 25$. [3 marks]

2. Given $r = -0.6, s_x = 5, s_y = 10, \bar{x} = 8$ and $\bar{y} = 30$, find the regression line. [3 marks]

3. A candidate line has residuals $-2,1,1$. Calculate its sum of squared residuals. [3 marks]

4. Two models have residuals $A = (-3, 0, 3)$ and $B = (-2, 1, 1)$. Which has the smaller least-squares error? [3 marks]

5. A regression line has $a = 7$ and $b = 0.5$. Predict y at $x = 12$. [3 marks]

6. A student rounds $b = 0.08473$ to 0.1 before predicting at $x = 900$. Explain the risk. [3 marks]