# Response to Multiple Choice Statistics Question

To find the regression equation of the form $y = mx + b$ for the provided data pairs, I need to calculate the slope and y-intercept using the least squares method.

First, I'll organize the calculations in a table to find the required sums:

| $x$ | $y$ | $x^2$ | $xy$ |

|-----|-----|-------|------|

| 1 | 1.24 | 1 | 1.24 |

| 2 | 5.23 | 4 | 10.46 |

| 3 | 7.24 | 9 | 21.72 |

| 4 | 7.60 | 16 | 30.40 |

| 5 | 9.97 | 25 | 49.85 |

| 6 | 14.31 | 36 | 85.86 |

| 7 | 13.99 | 49 | 97.93 |

| 8 | 14.88 | 64 | 119.04 |

| 9 | 18.04 | 81 | 162.36 |

| 10 | 20.70 | 100 | 207.00 |

| $\sum x = 55$ | $\sum y = 113.20$ | $\sum x^2 = 385$ | $\sum xy = 785.86$ |

With $n = 10$ data points, I can now calculate the slope $m$ using:

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

$m = \frac{10(785.86) - 55(113.20)}{10(385) - 55^2}$

$m = \frac{7858.6 - 6226.0}{3850 - 3025}$

$m = \frac{1632.6}{825}$

$m = 1.98$

Now for the y-intercept $b$:

$b = \frac{\sum y - m\sum x}{n}$

$b = \frac{113.20 - 1.98(55)}{10}$

$b = \frac{113.20 - 108.9}{10}$

$b = \frac{4.3}{10}$

$b = 0.43$

Therefore, the regression equation is approximately $y = 1.98x + 0.43$, which aligns with option (C) $y = 1.98x + 0.436$.

The answer is (C).