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| **Topic 4: Statistics and Probability** | **Correlation Coefficient and Linear Regression** | | |
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| 1. The table below contains the pulse rates of students before and after exercise in beats per minute.  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Pulse Rate Before Exercise (x) | 86 | 88 | 75 | 88 | 64 | 84 | 85 | 91 | 89 | 86 | 87 | 96 | | Pulse Rate After Exercise (y) | 160 | 161 | 150 | 160 | 140 | 155 | 154 | 163 | 158 | 156 | 159 | 160 | | | | |
| Find:   * 1. Pearson’s product-moment correlation coefficient,   2. The equation of the regression line on   3. Use the line on to estimate the pulse rate of a student after exercise if their pulse rate before exercise was 90 beats per minute | | | (2 marks)  (2 marks)  (2 marks) |
| Mark scheme: | | (A2)   (A1)(A1) For correct gradient and correct y-intercept. Must be in the form of an equation to receive both marks.  (M1)  (A1) | |