MEMORANDUM

Name: ..... Class: .....

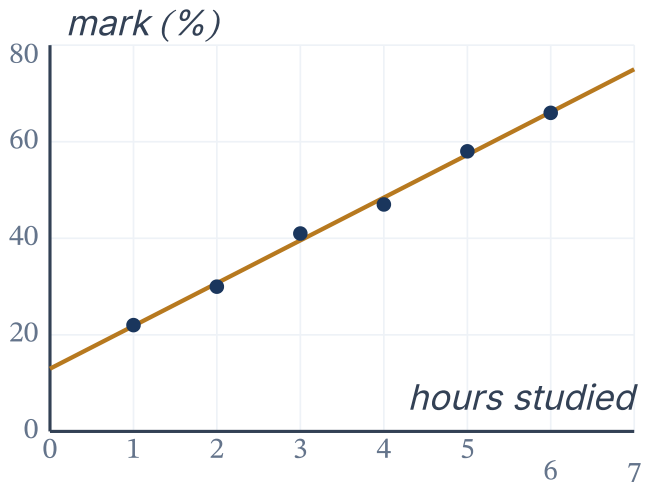
Date: .....

MARK ____ / 15

Answer all questions. Show all your working — marks are awarded for method as well as the final answer. **Teacher copy: accept any correct equivalent method.**

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1 Using the scatter plot below, describe the type of relationship shown. (2)

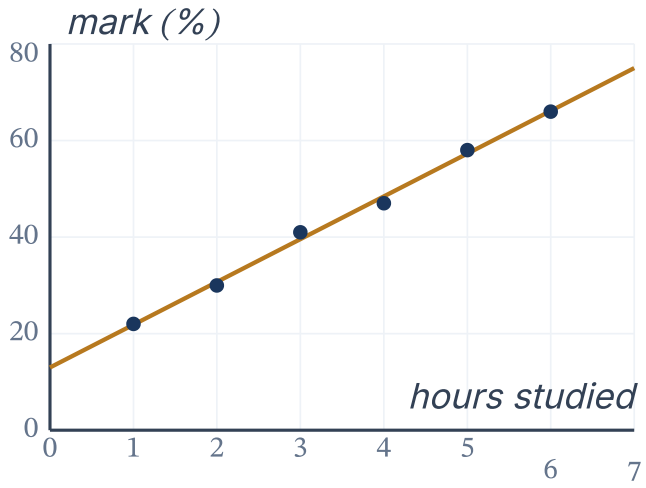


A **strong positive linear** relationship ✓✓ (2)

2 The calculator gives A = 13,00 and B = 8,86. Write down the equation of the least squares regression line. (2)

$\hat{y} = 13{,}00 + 8{,}86x$ ✓✓ (2)

3 Use the regression line to predict the mark of a learner who studies for 7 hours. (2)



$13{,}00 + 8{,}86(7) = 75{,}02 \approx$ **75%** ✓✓ (2)

4 Interpret the gradient of the regression line in this context. (2)

Each extra hour of study is associated with about **8,86 more percentage points**. ✓✓ (2)

5 The correlation coefficient is $r = 0{,}998$. Interpret it. (2)

A **very strong positive linear correlation** ✓✓ (2)

6 What is the possible range of values for r? (1)

$\mathbf{-1 \leq r \leq 1}$ ✓ (1)

7 Would it be reasonable to use this line to predict the mark for 20 hours of study? Explain. (2)

No — 20 hours is far outside the data range (1 to 6 hours) and the prediction would exceed 100%. ✓✓ (2)

8 Does a strong correlation prove that studying causes higher marks? (2)

No — correlation does not prove causation. ✓✓ (2)

TOTAL: 15 marks

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