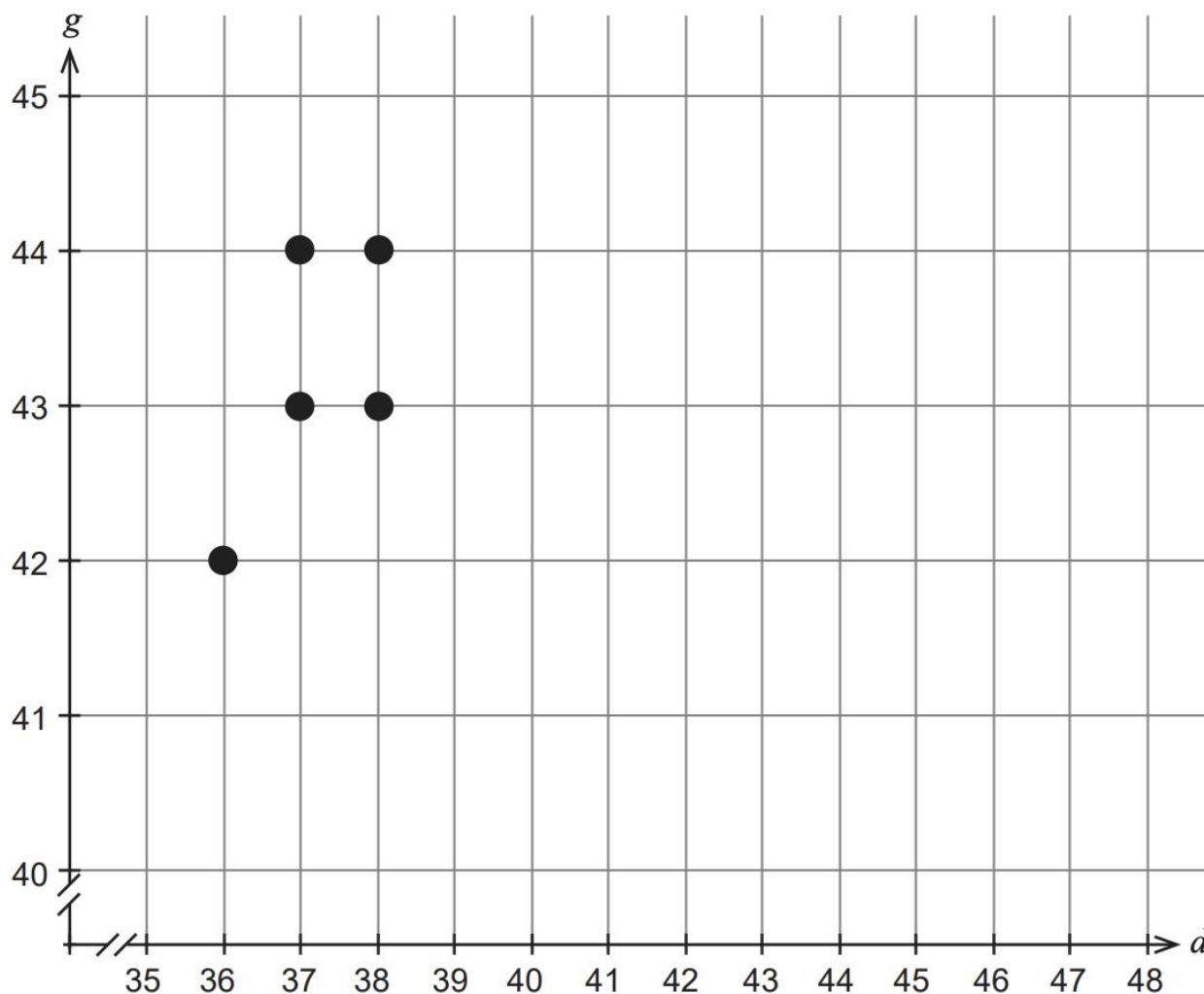**Question 4** **(11 marks)**

The table shows data comparing the gestation period (in days) with the birth weight (in grams) for ten Tasmanian possums.

Gestation period in days (d)	36	37	37	38	38	42	43	44	44	45
Birth weight in grams (g)	42	43	44	43	44	41	42	43	41	42

(a)   Plot the last five data points on the axes below.   (2 marks)

The correlation coefficient for these observations is approximately -0.6 and the least-squares line is $g = -0.17d + 49$.

(b)   Describe what this correlation suggests about the general pattern of association between gestation period and birth weight.

(2 marks)

(c)   Determine the coefficient of determination for these data.   (1 mark)

(d)   State the meaning of the coefficient of determination in the context of the question.
                                                                                       (1 mark)

(e)   Use the least-squares line to predict the birth weight of a possum after 40 days gestation.
                                                                                       (1 mark)

(f)   Comment on the validity of this prediction.   (2 marks)

(g)   Is there any statistical evidence to support the research view that a higher birth weight
        will cause a shorter gestation period? Justify your answer.   (2 marks)