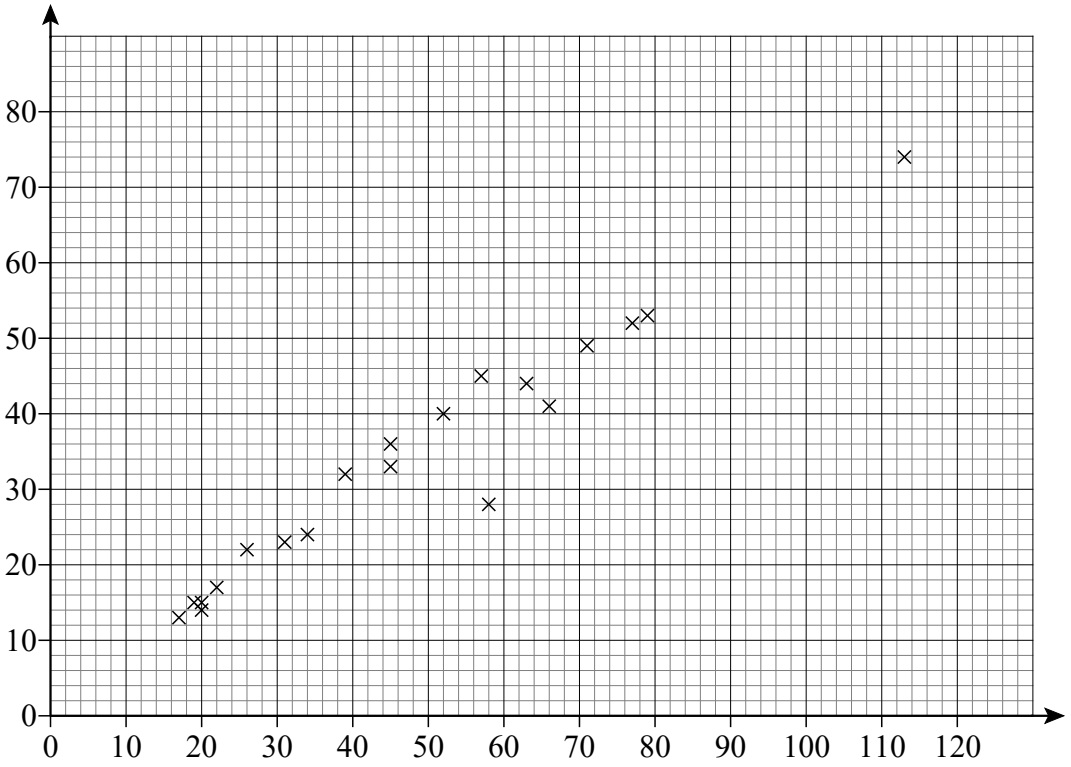
Topic Test 1 (20 minutes)

Scatter graphs - Foundation

1 The scatter graph shows the lengths and widths of some leaves.



1 (a) One of the leaves has a length of 34 mm

Write down its width.

[1 mark]

Answer _____ mm

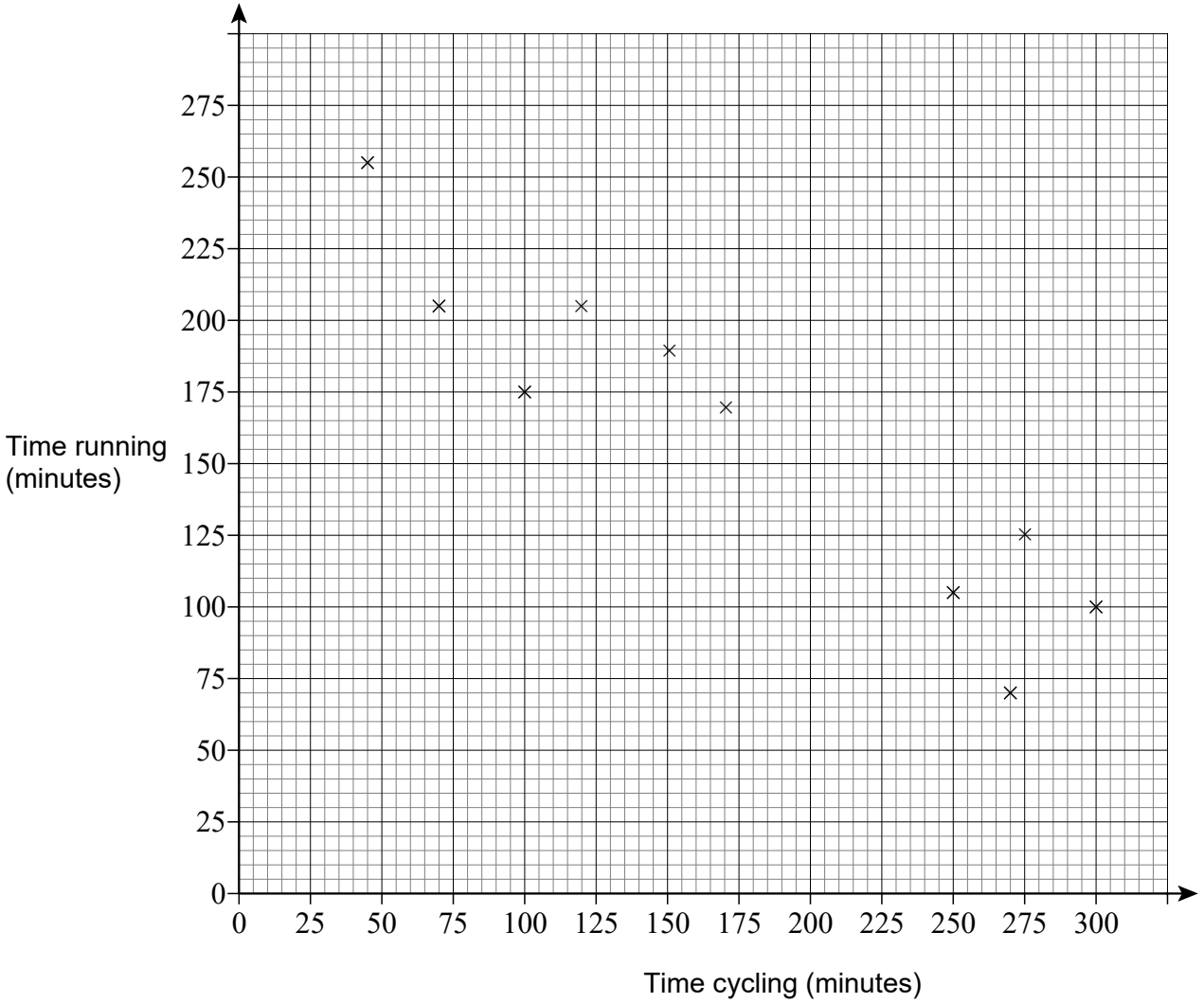
1 (b) All the points except one show **strong** positive correlation.

Circle the point on the graph that does **not** fit the pattern.

[1 mark]

AQA Education (AQA) is a registered charity (number 1074) and a company limited by guarantee registered in England and Wales (number 3644723). Our registered address is AQA, Devas Street, Manchester M15 6EX.

2 The times spent cycling and running on ten days are shown on the scatter graph.



2 (a) The average time spent cycling per day on the ten days is 175 minutes.

The average time spent running per day on the ten days is 160 minutes.

Plot the point (175, 160) on the graph.

[1 mark]

2 (b) Draw a line of best fit through the data.

[1 mark]

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2 (c) On another day he spends 150 minutes running.
Use a line of best fit to estimate the time he spent cycling.

[1 mark]

Answer _____ minutes

2 (d) On another day he did no running and no cycling.
What assumptions can you make about the effect this data would have on the result in part (c)?

[1 mark]

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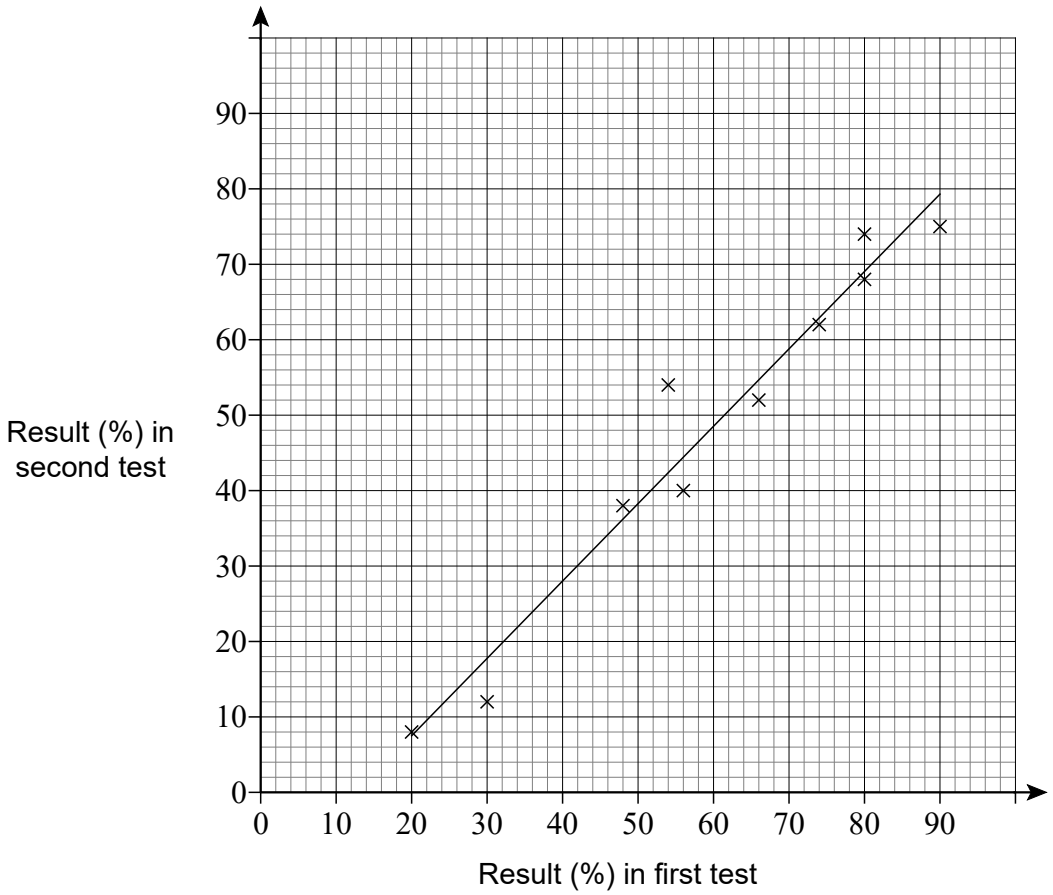
3 The scatter graph shows information about the results of 10 students in two tests.



3 (a) The data has strong positive correlation.

Describe in words the relationship between the results in the first and second tests.

[1 mark]

Answer _____

3 (b) In the first test Hana got 38%

Estimate her result in the second exam.

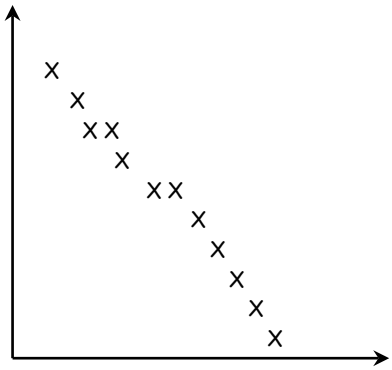
[1 mark]

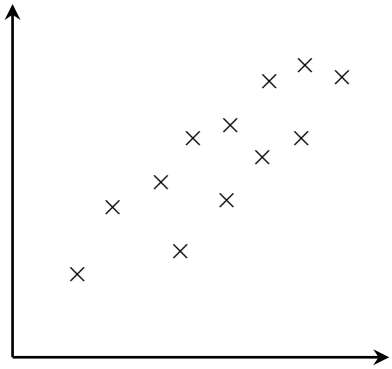
Answer _____

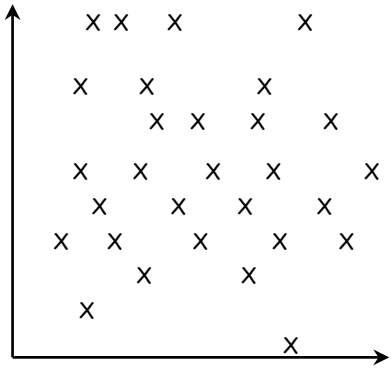
4 Match each scatter graph with a description.

The first one has been done for you.

[2 marks]



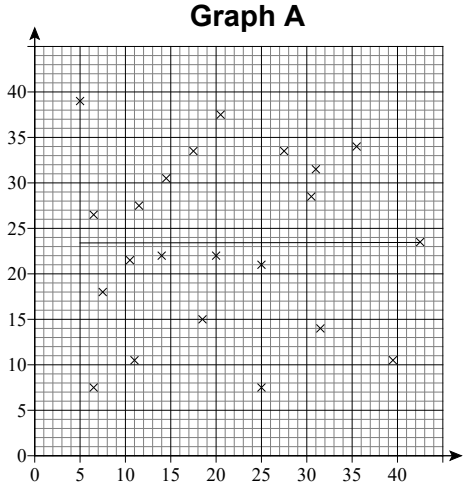




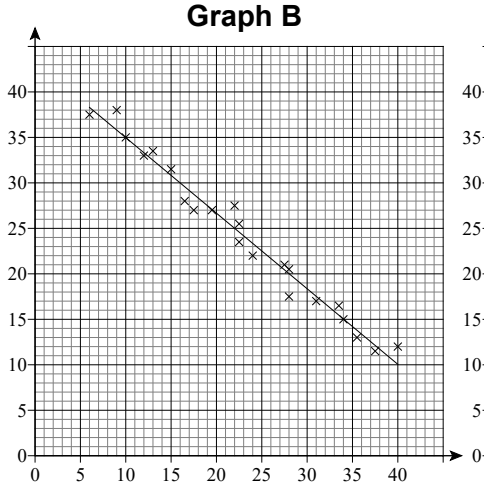
- Strong positive correlation
- Weak positive correlation
- Little or no correlation
- Weak negative correlation
- Strong negative correlation

5 Here are three scatter graphs.

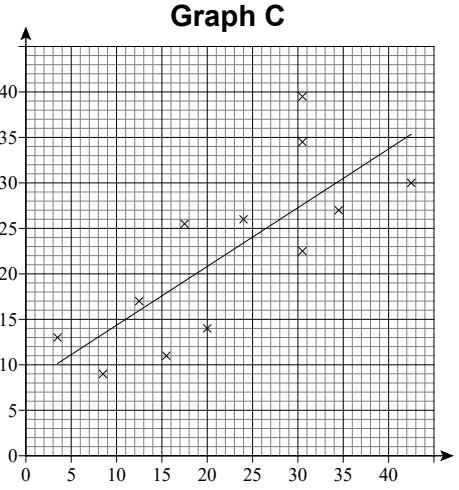
Graph A



Graph B



Graph C



5 (a) Which graph has the strongest correlation?
Circle your answer.

[1 mark]

A **B** **C**

5 (b) Which line of best fit should **not** have been drawn?
Give a reason for your answer.

[1 mark]

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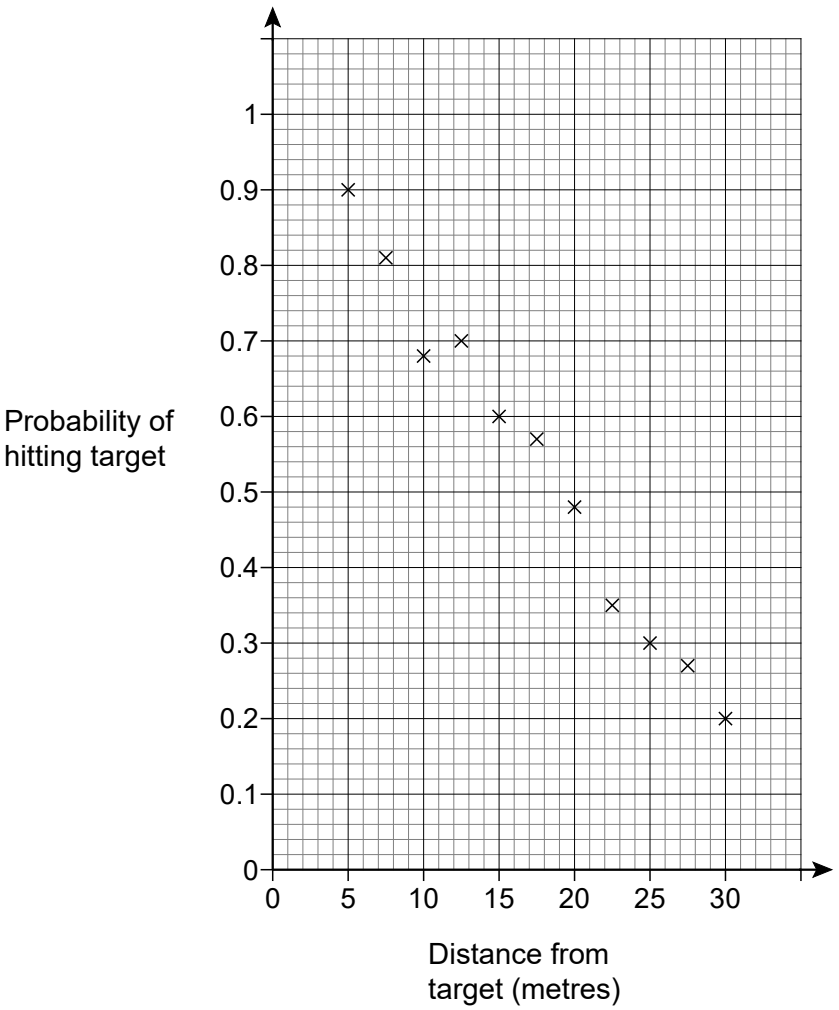
6 Adam wants to use an archery game at the school fair.

He asks people to shoot arrows at a target from different distances.

He obtains the following data.



He wants to make a 60% profit on what he charges players.

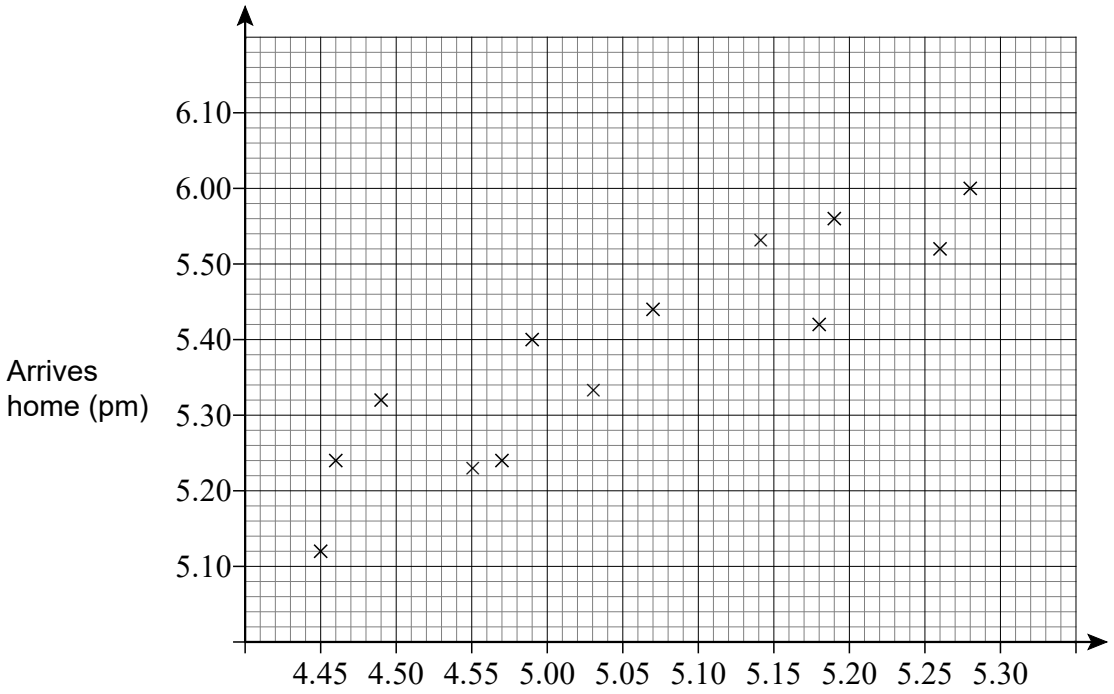
Use a line of best fit to work out how far away he should put the target.

[3 marks]

Answer _____ metres

7 Sara cycles home from work each day.

The scatter graph shows information about her journey times.



7 (a) Sara leaves work at 5.12 pm

Use a line of best fit to estimate the length of her journey home.

[3 marks]

Answer _____ minutes

7 (b) One day she works late and does not leave work until 6 pm

Write down two reasons why the scatter graph may not be useful to estimate what time she will arrive home.

[2 marks]

Reason 1

Reason 2