

AQA Level 3 Mathematical Studies 2026 **Practice Paper 2A**

Do not turn over the page until instructed to do so.

This assessment is out of 60 marks and you will be given 90 minutes.

When you are asked to by your teacher write your **full name** below

Name:

Total Marks: / 60

- 1 The table below shows the survival information for passengers on the Titanic

Economic Class	Total Population		Number of Deaths	
	Male	Female	Male	Female
Class I	180	145	118	4
Class II	179	106	154	13
Class III	510	196	422	106
Crew	862	23	670	3

- a) What percentage of the total passengers died?

[2 marks]

- b) For a passenger in Class I what was the probability of survival if they were

Male:

Female:

[2 marks]

c) Write a brief report summarising the information in the table.
Your report should include:

- Differences between the economic classes and survival rates.
- The impact of gender on the chance of survival.

[5 marks]

2 Use **The Computer Games Market** from the Preliminary material.

- a)** Use the information in **Graph 1** to calculate the forecast revenue of PC Gaming in 2023?

[1 mark]

- b)** Freya is reading **Report A** and says that: “the stated absolute increase of console players is incorrect as $3 \times 3 \% = 9 \%$.

Comment on the accuracy of Freya’s claim.

[2 marks]

- c) (i)** Using the formula in the pre-release for CAGR, verify the figure shown **Graph 1** for the CAGR between 2015 and 2016

[2 marks]

- (ii)** Is the overall CAGR between 2015 and the predicted figures for 2026 equal to / less than / more than the CAGR seen between 2015 and 2021.

[2 marks]

- d) Jess is trying to improve the readability of **Graph 2** before presenting it to some gaming industry journalists.

Suggest two improvements she could make to **Graph 2** as shown in the preliminary material.

[2 marks]

Improvement 1:

Improvement 2:

- e) In **Report B** it is stated that 53 % of players preferred F@P games, 39 % preferred to pay a premium one off charge and 9 % preferred a subscription.

Adam says “ $53 + 39 + 9 = 101$ and so this data can’t be trusted.

Is there an alternative explanation?

Fully justify your answer.

[2 marks]

- f)** Using **Graph 3** describe the growth of revenue in cloud gaming between 2018 and 2026.

[3 marks]

- e)** Terry claims that in 2022 revenue from cloud gaming was almost 4 times that of revenue from physically sold games.

Does **Graph 3** support this claim?

[2 marks]

3

The normal distribution is an important probability distribution in statistics.

Draw a line from each box on the left to the correct values on the right.

	0.475
The mean of the standardised normal distribution	1
The variance of the standardised normal distribution.	0.67
$P(\mu < x < \mu + 2\sigma)$	0.95
$P(\mu - \sigma < x < \mu + \sigma)$	0

[2 marks]

4 The weight of a cinnamon bun produced in a small craft bakery is normally distributed with mean 180 grams and standard deviation 10 minutes.

a) Calculate the probability that a cinnamon bun sampled off the production line will weigh

i) was 185 grams.

[1 mark]

ii) was under 183 minutes

[2 marks]

iv) was not below 85 % of the mean time

[2 marks]

- b)** The probability a bun weighed between m grams and 225 grams is 0.8.

Work out the value of m .

[3 marks]

- 5 Students in Year 11 collect behaviour points when they do something wrong.

Here are three point estimates for the mean score of all the students.

No student is in more than one sample.

Sample Size	Point Estimate
25	22.7
45	26.1
30	18.4

- a) Using this data, what is the best possible estimate of the population mean for the number of behaviour points per student in Year 11?

[3 marks]

- b)** Following the introduction of a new behaviour policy, Mr Barnes, the head of Year 11 wants to investigate whether the mean number of behaviour points per student has decreased.

Describe how he could collect a simple random sample.

[2 marks]

7 Tess is working with some data for 10 male Adelie penguins.

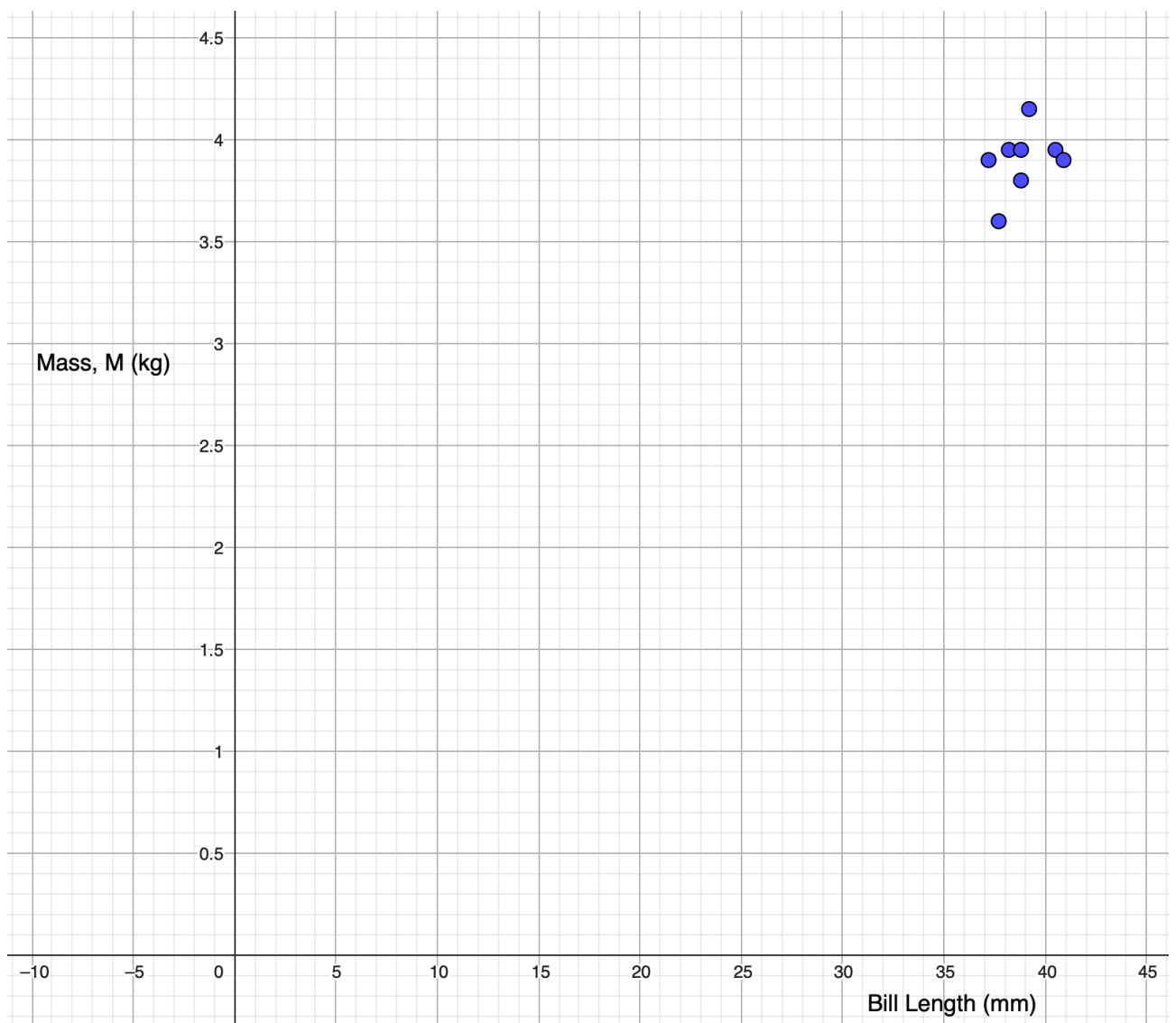
She is looking at the relationship between bill length and mass.

Bill Length (mm)	37.7	38.2	38.8	40.5	37.2
Mass (grams)	3600	3950	3800	3950	3900
Bill Length (mm)	40.9	39.2	38.8	40.6	39.8
Mass (grams)	3950	4150	3950	3550	4650

a) Tess plots the scatter diagram shown below.

It shows the mass (in kg) about plotted against bill length.
Complete the diagram by plotting the last two data points.

[1 mark]



- b)** How could the graphical representation of this data be improved?

[1 mark]

- c) (i)** Calculate the equation of the regression line of M on B .

[2 marks]

- (ii)** Draw the regression line on the scatter diagram.

[2 marks]

- d)** Tess measures another male Adelie penguin's bill length as 25 mm.

Calculate an estimate for the mass of this penguin, giving your answer in grams, and comment on its reliability.

[3 marks]

- e) The data set also contains the flipper length of the penguins as shown below.

Bill Length (mm)	37.7	38.2	38.8	40.5	37.2
Flipper Length (mm)	180	185	180	180	178
Bill Length (mm)	40.9	39.2	38.8	40.6	39.8
Flipper Length (mm)	184	196	190	183	184

Bobby wants to use the bill length to estimate the:

- Mass of a Penguin
- The flipper length

Which of these estimates is likely to be the most reliable?

[3 marks]

- 8 A fishmonger in St Ives is interested in the average weight of a sardine in their catch.

The weight is known to be normally distributed with mean μ and variance 15^2 grams.

A sample of 10 tomatoes are weighed giving the sample data below.

178	165	120	154	153
147	148	125	146	178

- a) Construct a 98% confidence interval for μ .

[5 marks]

- b)** Using your answer to **Question 7(a)** comment on the claim that $\mu = 161$.

[2 marks]

- c)** How could the conclusion to Question 7(b) change if a 90 % confidence interval had been used?

[1 marks]