



H06-10min The Normal Distribution: 10-minute Pack

EDEXCEL 1ST0 · Calculator allowed · about 10 minutes

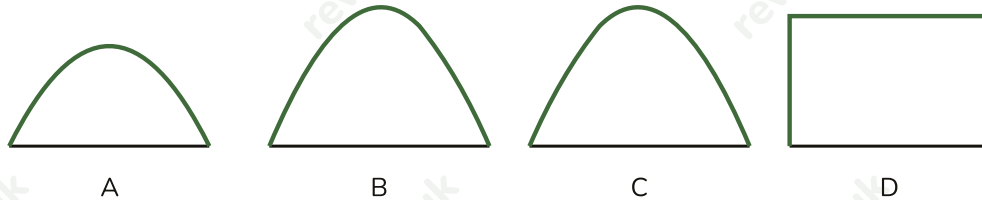
Total Marks

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1** The diagrams show four sketched distribution curves, labelled A to D.

Write down the letter of the curve that shows a normal distribution.



- ☐ A
☐ B
☐ C
☐ D

(Total for Question 1 is 1 mark)

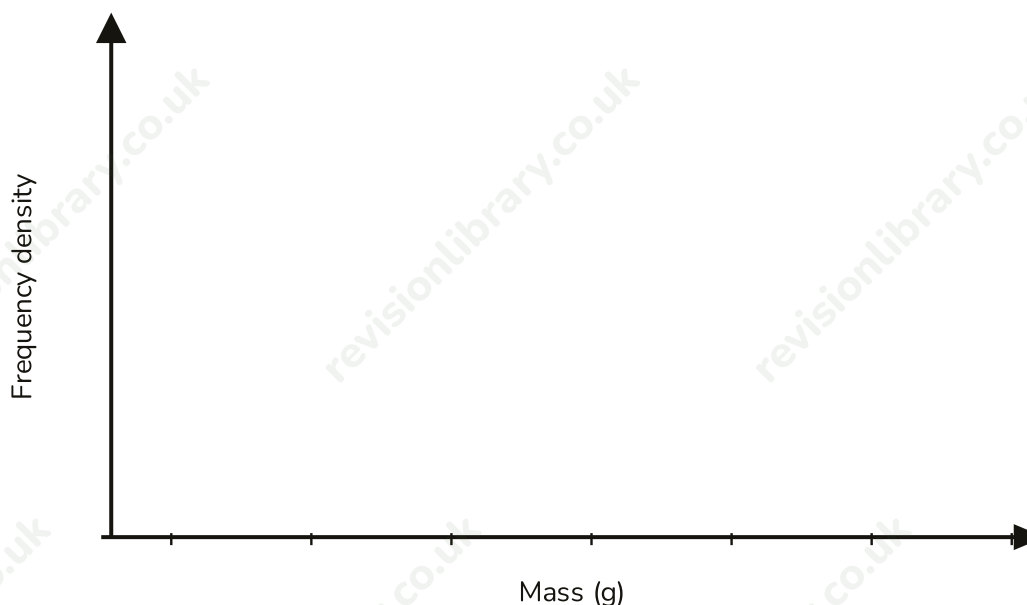
- 2** For any normal distribution, complete each sentence below using one of the values 68%, 95% or 99.7%.

- (a) Approximately ____ of the data values lie within 1 standard deviation of the mean. (1)
- (b) Approximately ____ of the data values lie within 2 standard deviations of the mean. (1)
- (c) Approximately ____ of the data values lie within 3 standard deviations of the mean. (1)

(Total for Question 2 is 3 marks)

- 3** A machine packs bags of sugar. The masses of the bags are normally distributed with a mean of 1000 g and a standard deviation of 15 g.

On the axes below, sketch a normal distribution curve to show the distribution of the masses. Label the mean, and the values 1 and 2 standard deviations above and below the mean, on the horizontal axis.



(Total for Question 3 is 4 marks)

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- 4** The marks scored by 240 candidates in a statistics exam are normally distributed with a mean of 65 and a standard deviation of 8.

Work out an estimate for the number of candidates who scored more than 81 marks.

(Total for Question 4 is 3 marks)

Mark scheme · H06-10min The Normal Distribution: 10-minute Pack

Question 1

- **B1** A cao
- **Answer: A**

Question 2

- (a) **B1** 68% cao
- (a) **Answer: 68%**
- (b) **B1** 95% cao
- (b) **Answer: 95%**
- (c) **B1** 99.7% cao
- (c) **Answer: 99.7%**

Question 3

- **B1** symmetric, single-peaked bell-shaped curve drawn, centred on the middle tick
- **B1** the middle tick correctly labelled as the mean, 1000 (g)
- **B1** 985 and 1015 correctly labelled at 1 standard deviation below/above the mean
- **B1** 970 and 1030 correctly labelled at 2 standard deviations below/above the mean
- **Answer: A symmetric bell-shaped curve peaking at 1000 g, with 985 g and 1015 g marked at ± 1 sd, and 970 g and 1030 g marked at ± 2 sd.**

Question 4

- **M1** identifies 81 as 2 standard deviations above the mean, oe
- **M1** $(100-95)/2$, oe
- **A1** 6 cao
- **Answer: 6 candidates**