

E8 Probability

Question Paper

Level	IGCSE
Subject	Maths (0580)
Exam Board	Cambridge International Examinations (CIE)
Level	Core
Topic	E8. Probability
Sub-Topic	
Booklet	Question Paper

Time Allowed: 66 minutes

Score: /55

Percentage: /100

Grade Boundaries:

A*	A	B	C	D	E	U
>85%	75%	60%	45%	35%	25%	<25%

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- 1 In a group of students the probability that a student is left-handed is 0.28 .
A student is chosen at random from the group.

Find the probability that this student is not left-handed.

.....[1]

- 2 Joel spins a fair five-sided spinner numbered 2, 3, 4, 5 and 6.

(a) Write down the probability that the spinner lands on

(i) an odd number,

..... [1]

(ii) a prime number,

..... [1]

(iii) the number 7.

..... [1]

(b) Here are the results of his first 20 spins.

Number	2	3	4	5	6
Frequency	3	2	6	4	5

(i) Write down the mode.

..... [1]

(ii) Calculate the mean.

..... [3]

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(iii) Joel wants to draw a pie chart to show the results in the table.

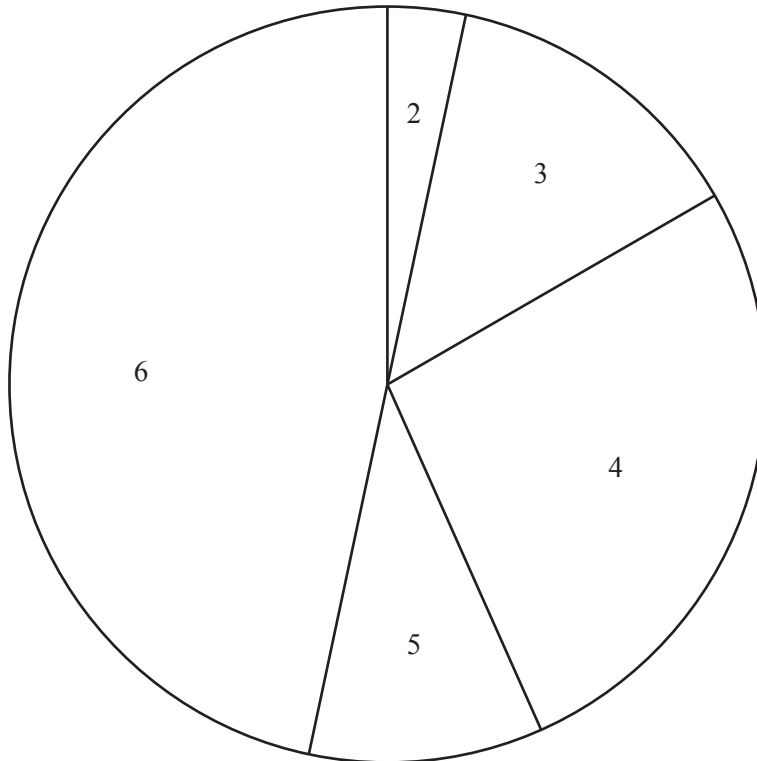
(a) Show that the sector angle for the number 2 is 54° .

(b) Find the sector angle for the number 6.

[1]

..... [2]

(c) Joel asks 30 students to guess the number that the spinner will next land on.
The results are shown in this pie chart.



(i) The sector angle for the number 6 is 168° .

How many students guessed the number 6?

..... [2]

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- (ii) Find the percentage of the students who guessed a number **less than 5**.

.....% [3]

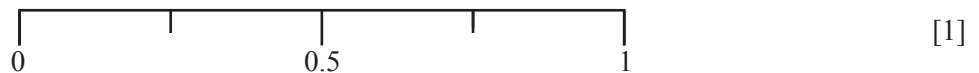
- (iii) Joel spins the spinner.
10% of the 30 students guessed correctly.

Which number did the spinner land on?

..... [2]

- 3 (a) A bag contains 16 counters.
4 of the counters are blue.
A counter is taken from the bag at random.

On the probability scale, draw an arrow (\downarrow) to show the probability that this counter is blue.



- (b) Another bag contains 5 black counters, 8 white counters, 6 green counters and 1 yellow counter.
A counter is taken from this bag at random.

Find the probability that this counter is

- (i) white,

..... [1]

- (ii) not white.

..... [1]

4 The table shows the number of screws of different lengths in a box of 100 screws.

Length (mm)	20	40	50	60
Number of screws	18	36	24	22

A screw is chosen at random from the box.

Find the probability that the screw has length

(a) 50 mm,

..... [1]

(b) less than 60 mm,

..... [2]

(c) 70 mm.

..... [1]

5 Dan either walks or cycles to school.
The probability that he cycles to school is $\frac{1}{3}$.

(a) Write down the probability that Dan walks to school.

..... [1]

(b) There are 198 days in a school year.

Work out the expected number of days that Dan cycles to school in a school year.

..... [1]

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6 (a) The table shows the temperature at noon each day for one week in a city.

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
5°C	2°C	-3°C	-1°C	0°C	1°C	-2°C

(i) Which day had the lowest noon temperature?

..... [1]

(ii) Find the difference between the noon temperatures on Tuesday and Wednesday.

.....°C [1]

(iii) Write these seven temperatures in order, starting with the lowest.

.....,,,,,, [1]
lowest

(iv) On Sunday the noon temperature was -2°C.
The next day the noon temperature fell by 4°C.

Find the noon temperature on the next day.

.....°C [1]

(b) The number of houses in the city is 1 935 364.

Write this number correct to the nearest million.

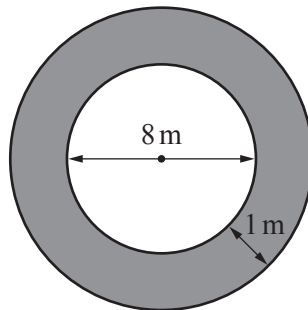
..... [1]

- (c) The height, h metres, of a tower in the city is 120 m, correct to the nearest 10 m.

Complete this statement about the value of h .

..... $\leq h <$ [2]

- (d) The diagram shows the cross section of a circular tunnel in the city.



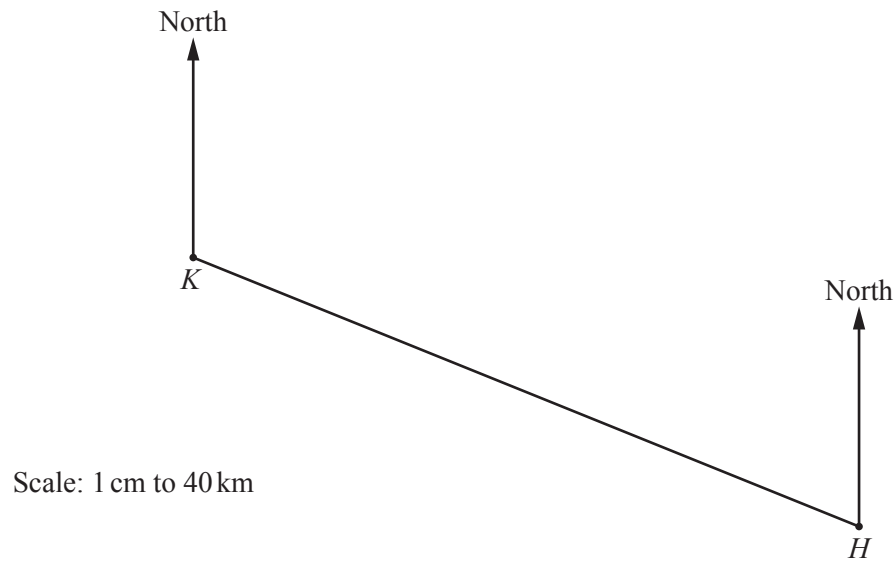
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SCALE

Calculate the shaded area.

..... m² [4]

7 The Patel family flies from their home town, H , to Kiruna, K , in Lapland.

(a) The scale drawing shows their journey.
The scale is 1 centimetre represents 40 kilometres.



(i) Measure the bearing of K from H .

Answer(a)(i) [1]

(ii) Work out the distance in kilometres from H to K .

Answer(a)(ii) km [2]

(iii) The average speed of the plane is 450 km/h.

Find the average speed in m/s.

Answer(a)(iii) m/s [2]

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(b) The probability that the plane arrives on time is 0.15 .

(i) Write down the probability that the plane does **not** arrive on time.

Answer(b)(i) [1]

(ii) Every year there are 240 flights from *H* to *K*.

Calculate the expected number of flights that arrive on time.

Answer(b)(ii) [1]

(c) The Patel family has six suitcases.

The number of items in each suitcase is shown below.

15 16 16 18 19 21

(i) Find the range.

Answer(c)(i) [1]

(ii) Write down the mode.

Answer(c)(ii) [1]

(iii) Work out the median.

Answer(c)(iii) [1]

(iv) Calculate the mean.

Answer(c)(iv) [2]

(v) Find the probability that a suitcase chosen at random has more than 18 items.

Answer(c)(v) [1]

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- (d) Mr Patel buys a bag of sweets.
The bag of sweets costs \$3.25 .

- (i) Calculate the cost of the sweets in euros (€) when the exchange rate is $\text{€}1 = \$1.24$.

Answer(d)(i) €..... [2]

- (ii) The weight, w grams, of the bag of sweets is 250 g correct to the nearest 10 g.

Complete this statement about the value of w .

Answer(d)(ii) $\leq w <$ [2]