

# 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]

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

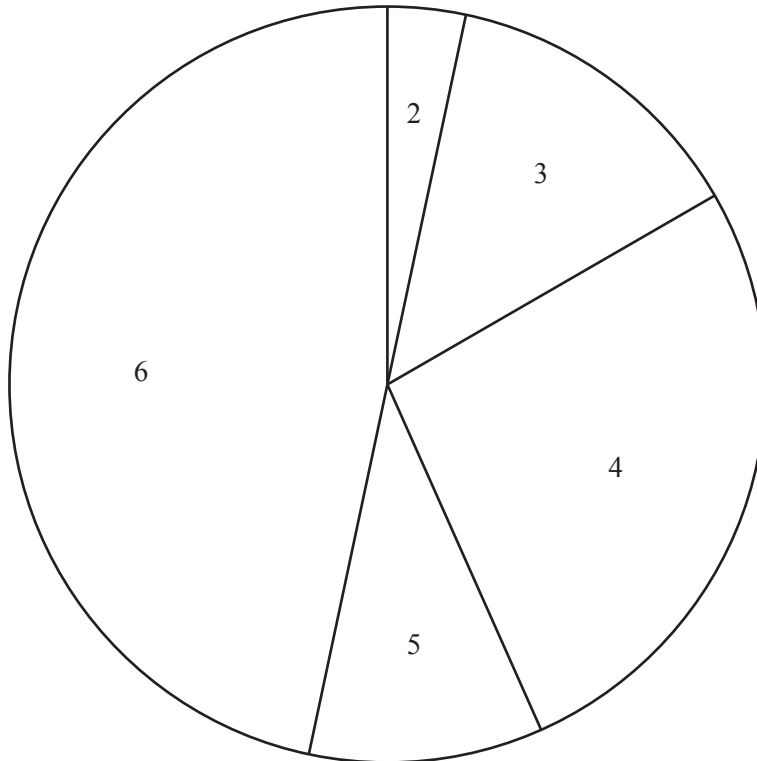
(a) Show that the sector angle for the number 2 is  $54^\circ$ .

(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  $168^\circ$ .

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]

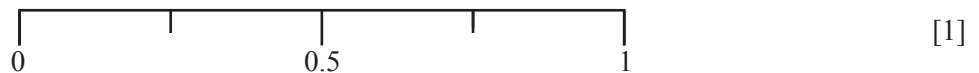
- (iii) Joel spins the spinner.  
10% of the 30 students guessed correctly.

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]

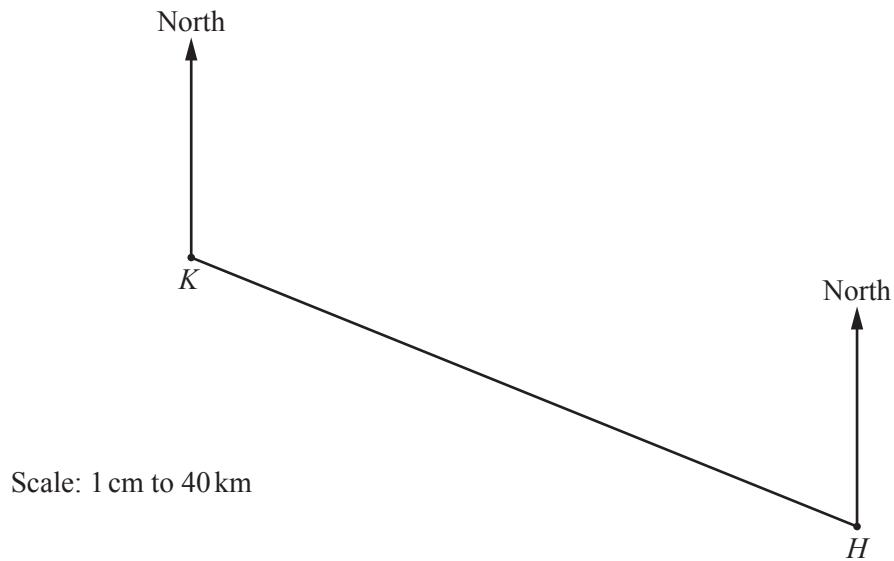
(b) There are 198 days in a school year.

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

..... [1]

6 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]