



S18-30min Probability Basics and the Probability Scale: 30-minute Pack

EDEXCEL 1ST0 · Calculator allowed · about 30 minutes

Total Marks

--

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1** Write down the probability, as a number, that a fair six-sided dice lands on a number more than 6.

(Total for Question 1 is 1 mark)

- 2** A bag contains only yellow balls. A ball is picked at random from the bag. Write down the probability that the ball is yellow.

(Total for Question 2 is 1 mark)

3 Each sentence below describes a real event. Write down the probability word (impossible, unlikely, evens, likely or certain) that best describes each one.

(a) A fair coin, tossed once, lands on heads. (1)

(b) The sun rises tomorrow morning. (1)

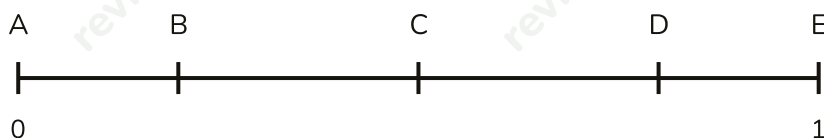
(c) It snows in the Sahara Desert tomorrow. (1)

(d) A person chosen at random in England was born in December. (1)

(e) It rains somewhere in the UK at some point next week. (1)

(Total for Question 3 is 5 marks)

- 4 The diagram shows a probability scale from 0 to 1. Five points, A to E, are marked on the scale.



- (a) Write down the letter that shows a probability of 0.5. (1)

- (b) Write down the letter that shows an event that is certain to happen. (1)

- (c) Write down, in words, the likelihood shown by point B. (1)

- (d) A probability of $\frac{3}{4}$ is to be marked on the scale as point F. Mark point F on the scale with a cross, and label it F. (2)

(Total for Question 4 is 5 marks)

- 5 A card is drawn at random from a standard 52-card pack. Write down the probability, as a fraction in its simplest form, that the card is a heart.

(Total for Question 5 is 2 marks)

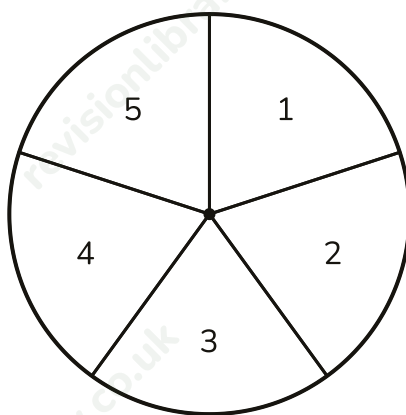
- 6 A probability is given as 0.85. Write this probability as a fraction in its simplest form, showing your working.

(Total for Question 6 is 2 marks)

- 7 A biased coin has probability 0.65 of landing on heads. Work out the probability that it lands on tails.

(Total for Question 7 is 2 marks)

- 8 The spinner shown has 5 equal sections, numbered 1 to 5. The spinner is spun once.



- (a) Write down the probability that the spinner lands on 4. (1)

.....

- (b) Work out the probability that the spinner lands on an even number. (2)

.....

- (c) By first working out the probability that the spinner lands on a multiple of 3, work out the probability that it does not land on a multiple of 3. (2)

.....

(Total for Question 8 is 5 marks)

9 A fair coin, which can land on Heads (H) or Tails (T), is tossed once. At the same time, a fair three-sided spinner, with sections numbered 1, 2 and 3, is spun once.

(a) List, systematically, all the possible outcomes of tossing the coin and spinning the spinner together. (2)

(b) Find the probability of getting a Tail and an odd number. (2)

(Total for Question 9 is 4 marks)

10 A weather forecaster says: "There is a 70% chance of rain tomorrow." A student says: "This means it will definitely rain for exactly 70% of tomorrow."

(a) Evaluate the student's statement, explaining what a 70% probability of rain actually means. (2)

(b) Using probability vocabulary, state how likely it is to rain tomorrow. (1)

(Total for Question 10 is 3 marks)

Mark scheme · S18-30min Probability Basics and the Probability Scale: 30-minute Pack

Question 1

- **B1** 0 cao
- **Answer: 0**

Question 2

- **B1** 1 cao
- **Answer: 1**

Question 3

- (a) **B1** evens cao
- (a) **Answer: Evens**
- (b) **B1** certain cao
- (b) **Answer: Certain**
- (c) **B1** impossible cao
- (c) **Answer: Impossible**
- (d) **B1** unlikely cao
- (d) **Answer: Unlikely**
- (e) **B1** likely cao
- (e) **Answer: Likely**

Question 4

- (a) **B1** C cao
- (a) **Answer: C**
- (b) **B1** E cao
- (b) **Answer: E**
- (c) **B1** unlikely cao
- (c) **Answer: Unlikely**
- (d) **M1** point plotted between C (0.5) and D (0.8), clearly closer to D than to C
- (d) **A1** F plotted at 0.75 (accept 0.7 to 0.8), just to the left of D
- (d) **Answer: F is marked at 0.75, just to the left of D.**

Question 5

- **M1** 13/52 seen, oe
- **A1** 1/4 cao
- **Answer: 1/4**

Question 6

- **M1** 85/100 seen, oe
- **A1** 17/20 cao
- **Answer: 17/20**

Question 7

- **M1** 1 - 0.65, oe
- **A1** 0.35 cao
- **Answer: 0.35**

Question 8

- (a) **B1** $1/5$ oe cao
- (a) **Answer: $1/5$**
- (b) **M1** identifies 2 and 4 as the even numbers (2 favourable outcomes)
- (b) **A1** $2/5$ oe cao
- (b) **Answer: $2/5$**
- (c) **M1** identifies 3 as the only multiple of 3, giving $P(\text{multiple of 3}) = 1/5$
- (c) **A1** $1 - 1/5 = 4/5$ oe cao
- (c) **Answer: $4/5$**

Question 9

- (a) **M1** a systematic attempt to list the outcomes, e.g. using a table or an organised list
- (a) **A1** all six outcomes correct: H1, H2, H3, T1, T2, T3
- (a) **Answer: H1, H2, H3, T1, T2, T3**
- (b) **M1** identifies the 2 favourable outcomes: T1 and T3
- (b) **A1** $2/6 = 1/3$ oe cao
- (b) **Answer: $1/3$**

Question 10

- (a) **B1** identifies that the student's statement is incorrect
- (a) **B1** a correct explanation, e.g. a 70% probability means that, if this situation happened many times, rain would occur on about 70% of those occasions; it is not a guarantee, and it says nothing about how long any rain lasts, oe
- (a) **Answer: The student's statement is incorrect. A 70% probability means rain is likely, and would be expected on about 70% of many similar days, but it is not guaranteed, and it says nothing about how long any rain lasts.**
- (b) **B1** Likely cao
- (b) **Answer: Likely**