Probability questions and answers

9 questions · Core · 7 non-calculator · worked answers

Name _____ Date _____ Score _____

- Original questions in the style of the Cambridge 0580 papers, each labelled Core or Extended and calculator or non-calculator. Try every question before you look at the answers.
- Worked answers start after the questions. Questions with marks come from our 0580 practice bank (M method, A accuracy, B independent marks).
- Online, with more practice: igcsemathrevision.com/igcse-frontend/0580/probability-questions

Core: for everyone (Papers 1 and 3, and Extended Papers 2 and 4)

1. **Core · non-calculator · easy**

A fair six-sided dice is rolled once.
Find the probability of rolling
(a) an even number
(b) a number greater than 4.

2. **Core · non-calculator · easy**

The probability that it rains tomorrow is 0.35.
Find the probability that it does not rain tomorrow.

3. **Core · non-calculator · easy**

A bag holds 5 red, 3 blue and 2 green counters. One counter is taken at random.
Find the probability that it is
(a) blue
(b) not red.

4. **Core · calculator · easy · 2 marks**

A fair six-sided dice is rolled. Find the probability of

(a) a prime number (b) a number greater than 4.

5. **Core · non-calculator · medium**

A spinner lands on A, B, C or D. $P(A) = 0.2$, $P(B) = 0.35$, $P(C) = x$ and $P(D) = 2x$.
Find x and $P(D)$.

6. **Core · non-calculator · medium**

Each letter of the word STATISTICS is written on a card. One card is chosen at random.
Find the probability that the letter is
(a) T
(b) a vowel.

7. **Core · non-calculator · medium · 2 marks**

A spinner can land on red, blue, green or yellow. P(red) = 0.2, P(blue) = 0.35 and P(yellow) = 0.15. Find P(green).

8. **Core · calculator · medium · 3 marks**

A bag contains only red and white counters. The probability of taking a red counter at random is $\frac{3}{8}$. There are 15 white counters. How many red counters are there?

9. **Core · non-calculator · hard**

A bag holds only red and blue beads. The probability of taking a red bead is $\frac{3}{8}$. There are 15 blue beads. How many red beads are in the bag?

Answers and worked solutions

Question 1

Answer: (a) $\frac{1}{2}$ (b) $\frac{1}{3}$

1. (a) Even numbers: $2, 4, 6$, so $\frac{3}{6} = \frac{1}{2}$.
2. (b) Greater than 4: $5, 6$, so $\frac{2}{6} = \frac{1}{3}$.

Question 2

Answer: 0.65

1. $P(\text{not } A) = 1 - P(A) = 1 - 0.35 = 0.65$

Question 3

Answer: (a) $\frac{3}{10}$ (b) $\frac{1}{2}$

1. There are 10 counters.
2. (a) $\frac{3}{10}$
3. (b) 5 are not red: $\frac{5}{10} = \frac{1}{2}$.

Question 4 — 2 marks

Answer: (a) $\frac{1}{2}$ (b) $\frac{1}{3}$

B1 (a) $\frac{3}{6}$ oe

B1 (b) $\frac{2}{6}$ oe

Question 5

Answer: $x = 0.15$, $P(D) = 0.3$

1. The probabilities add to 1: $0.2 + 0.35 + x + 2x = 1$.
2. $3x = 0.45$, so $x = 0.15$ and $P(D) = 0.3$.

Question 6

Answer: (a) $\frac{3}{10}$ (b) $\frac{3}{10}$

1. There are 10 letters: S, T, A, T, I, S, T, I, C, S.
2. (a) There are 3 Ts: $\frac{3}{10}$.
3. (b) The vowels are A, I, I: $\frac{3}{10}$.

Question 7 — 2 marks

Answer: 0.3

M1 $1 - (0.2 + 0.35 + 0.15)$

A1 0.3

Question 8 — 3 marks

Answer: 9

M1 $P(\text{white}) = \frac{5}{8}$

M1 $15 \div 5 \times 8 = 24$ counters

A1 9

Question 9

Answer: 9

1. $P(\text{blue}) = 1 - \frac{3}{8} = \frac{5}{8}$.
2. $\frac{5}{8}$ of the beads is 15, so there are 24 beads in total.
3. Red beads: $24 - 15 = 9$.

More probability practice with instant marking, notes and common mistakes: igcsemathrevision.com/igcse-frontend/0580/probability-questions

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