5.2 Probability Scale and Simple Events: 30-minute Pack

Calculators not allowed · about 30 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A fair coin is tossed three times. What is the probability of getting exactly one head? Give your answer as a fraction.

(2)

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2 A family has two children. Assuming boys and girls are equally likely, what is the probability that both children are girls? Give your answer as a fraction and percentage.

(2)

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3 A bag has 6 marbles: 2 white, 2 black and 2 red. A marble is taken at random and then replaced before taking another. What is the probability of drawing white then red in that order? Give your answer as a fraction.

(2)

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4 The probability that Ali wins a game is 0.35. Work out the probability that Ali does not win.

(2)

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5 A four-sided spinner lands on A, B, C or D. P(A) = x, P(B) = 2x, P(C) = 2x and P(D) = x. Work out the value of x, and then the probability that the spinner lands on B.

(3)

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6 A fair 12-sided spinner numbered 1 to 12 is rolled. Work out the probability of getting not a 6. Give your answer as a fraction in its simplest form.

(2)

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7 A bag contains 5 black, 6 green sweets. One is taken at random. Write down the probability that it is green. Give your answer as a fraction in its simplest form.

(2)

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8 A fair coin is flipped once. Write the probability of landing on heads as a fraction.

(1)

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9 A box contains 20 chocolates: 5 dark, 15 milk. One is chosen at random. Find the probability it is dark. Give your answer as a fraction, a decimal and a percentage.

(2)

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10 A biased coin has P(Heads) = 0.3. Find P(Tails).

(2)

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11 A fair six-sided die is rolled twice. Find the probability that the die shows a 5 both times. Give your answer as a fraction.

(3)

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12 A bag contains 4 counters, all yellow. State the probability of picking a yellow counter at random.

(1)

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Mark scheme · 5.2 Probability Scale and Simple Events: 30-minute Pack

A correct answer earns full marks unless the question asks for working, a method, proof or explanation.

Question 1

counting method: outcomes with exactly one head are H T T, T H T, T T H giving 3 successes out of 8	**M1**
3/8 cao	**A1**

Answer: **3/8**

Question 2

sample space GG, GB, BG, BB gives 1/4	**M1**
1/4 and 25% cao	**A1**

Answer: **1/4, 25%**

Question 3

probability white = 2/6 = 1/3 and red = 2/6 = 1/3 and multiply for independent events	**M1**
1/9 cao	**A1**

Answer: **1/9**

Question 4

1 - 0.35	**M1**
0.65 cao	**A1**

Answer: **0.65**

Question 5

x + 2x + 2x + x = 1	**M1**
x = 1/6	**A1**
P(B) = 1/3 cao	**A1**

Answer: **x = 1/6, P(B) = 1/3**

Question 6

identifies favourable outcomes 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12 or 11/12	**M1**
11/12 cao	**A1**

Answer: **11/12**

Question 7

6 out of 11 or 6/11 seen	**M1**
6/11 cao	**A1**

Answer: **6/11**

Question 8

1/2 cao	**B1**

Answer: **1/2**

Question 9

identify fraction 5/20	**M1**
1/4, 0.25, 25% cao	**A1**

Answer: **1/4, 0.25, 25%**

Question 10

use complement 1 - 0.3	**M1**
0.7 cao	**A1**

Answer: **0.7**

Question 11

identify P(5) = 1/6 for one roll	**M1**
multiply independent probabilities, 1/6 x 1/6	**M1**
1/36 cao	**A1**

Answer: **1/36**

Question 12

1 cao, with reason it is certain	**B1**

Answer: **1**

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