5.2 Probability Scale and Simple Events: 1-hour Pack

Calculators not allowed · about 60 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 One letter is chosen at random from the word BANANA. Work out the probability that it is a vowel.

(2)

2 A four-sided spinner lands on A, B, C or D. P(A) = 3x, P(B) = 3x, P(C) = 3x and P(D) = x. Work out the value of x, and then the probability that the spinner lands on B.

(3)

3 A biased die has probabilities of landing on the numbers 1 to 4 of 0.2, 0.1, 0.1 and p. Work out the value of p.

(2)

4 A biased die has probabilities of landing on the numbers 1 to 4 of 0.3, 0.1, 0.3 and p. Work out the value of p.

(2)

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5 A bag contains 3 red, 2 green and 5 yellow counters. What is the probability of drawing a yellow counter? Give your answer as a fraction in simplest form, a decimal and a percentage.

(2)

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6 One letter is chosen at random from the word MATHEMATICS. Work out the probability that it is a vowel.

(2)

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7 A spinner can land on red, blue or green. The probability of red is 0.14 and the probability of blue is 0.2. Work out the probability of green.

(2)

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8 A four-sided spinner lands on A, B, C or D. P(A) = 2x, P(B) = 3x, P(C) = 3x 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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9 A spinner can land on red, blue or green. The probability of red is 0.17 and the probability of blue is 0.08. Work out the probability of green.

(2)

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10 A bag contains 6 white, 3 blue, 4 black sweets. One is taken at random. Write down the probability that it is black. Give your answer as a fraction in its simplest form.

(2)

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11 A fair 8-sided spinner numbered 1 to 8 is rolled. Work out the probability of getting a prime number. Give your answer as a fraction in its simplest form.

(2)

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12 A four-sided spinner lands on A, B, C or D. P(A) = 2x, P(B) = 4x, P(C) = x 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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13 One letter is chosen at random from the word ENTERTAINMENT. Work out the probability that it is a vowel.

(2)

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14 A fair 12-sided spinner numbered 1 to 12 is rolled. Work out the probability of getting a factor of 12. Give your answer as a fraction in its simplest form.

(2)

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15 A card is chosen at random from a small pack showing only numbers 1 to 8. What is the probability the number is even? Give your answer as a fraction and decimal.

(2)

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16 A biased die has probabilities of landing on the numbers 1 to 4 of 0.1, 0.1, 0.3 and p. Work out the value of p.

(2)

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17 A biased die has probabilities of landing on the numbers 1 to 4 of 0.1, 0.4, 0.1 and p. Work out the value of p.

(2)

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18 A bag contains 5 green, 9 yellow, 1 blue, 2 orange 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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19 A fair coin is tossed and a fair 4-sided spinner numbered 1 to 4 is spun. Find the probability of getting tails on the coin and an even number on the spinner. Give your answer as a fraction.

(2)

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20 A bag contains 5 red and 3 blue counters. Two counters are drawn at random, one after another, without replacement. Find the probability that both counters are red. Give your answer as a fraction in simplest form.

(3)

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21 A spinner has 10 equal sections numbered 1 to 10. Write the probability of the spinner landing on 7.

(1)

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22 A bag has 10 counters: 4 red, 6 blue. Find the probability of picking a blue counter. Give your answer as a fraction in simplest form and as a decimal.

(2)

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Mark scheme · 5.2 Probability Scale and Simple Events: 1-hour Pack

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

Question 1

3 vowels out of 6 letters	M1
1/2 cao	A1

Answer: **1/2**

Question 2

3x + 3x + 3x + x = 1	M1
x = 1/10	A1
P(B) = 3/10 cao	A1

Answer: **x = 1/10, P(B) = 3/10**

Question 3

1 - (0.2 + 0.1 + 0.1)	M1
0.6 cao	A1

Answer: **0.6**

Question 4

1 - (0.3 + 0.1 + 0.3)	M1
0.3 cao	A1

Answer: **0.3**

Question 5

correct fraction 5/10 or equivalent used	M1
1/2, 0.5, 50% cao	A1

Answer: **1/2, 0.5, 50% (for yellow)**

Question 6

4 vowels out of 11 letters	M1
4/11 cao	A1

Answer: **4/11**

Question 7

1 - 0.14 - 0.2 or 1 - 0.34	M1
0.66 cao	A1

Answer: **0.66**

Question 8

2x + 3x + 3x + x = 1	M1
x = 1/9	A1
P(B) = 1/3 cao	A1

Answer: **x = 1/9, P(B) = 1/3**

Question 9

1 - 0.17 - 0.08 or 1 - 0.25	M1
0.75 cao	A1

Answer: **0.75**

Question 10

4 out of 13 or 4/13 seen	M1
4/13 cao	A1

Answer: **4/13**

Question 11

identifies favourable outcomes 2, 3, 5, 7 or 4/8	M1
1/2 cao	A1

Answer: **1/2**

Question 12

2x + 4x + x + x = 1	M1
x = 1/8	A1
P(B) = 1/2 cao	A1

Answer: **x = 1/8, P(B) = 1/2**

Question 13

5 vowels out of 13 letters	M1
5/13 cao	A1

Answer: **5/13**

Question 14

identifies favourable outcomes 1, 2, 3, 4, 6, 12 or 6/12	M1
1/2 cao	A1

Answer: **1/2**

Question 15

counting evens 2,4,6,8 gives 4/8 or equivalent	M1
1/2 and 0.5 cao	A1

Answer: **1/2, 0.5**

Question 16

1 - (0.1 + 0.1 + 0.3)	M1
0.5 cao	A1

Answer: **0.5**

Question 17

1 - (0.1 + 0.4 + 0.1)	M1
0.4 cao	A1

Answer: **0.4**

Question 18

5 out of 17 or 5/17 seen	M1
5/17 cao	A1

Answer: **5/17**

Question 19

identify P(tails) = 1/2 and P(even) = 1/2 (2 or 4 out of 4)	M1
1/4 cao	A1

Answer: **1/4**

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Question 20

identify first probability 5/8	**M1**
identify second probability 4/7 (after one red removed) and multiply	**M1**
5/14 cao	**A1**

Answer: **5/14**

Question 21

1/10 cao	**B1**

Answer: **1/10**

Question 22

identify fraction 6/10	**M1**
3/5 and 0.6 cao	**A1**

Answer: **3/5, 0.6**

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