2.105 Probability Scale and Simple Outcomes: 30-minute Pack

Total Marks

GL ASSESSMENT GL-11PLUS-MATHS · Calculators not allowed · about 30 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A jar contains 8 black, 6 green marbles. One is picked at random. What is the probability that it is black?

- ☐ A) 8/15
- ☐ B) 4/3
- ☐ C) 1/14
- ☐ D) 3/7
- ☐ E) 4/7

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2 The probability of a seed growing is 2/5. 85 seeds are planted. How many seeds would you expect to grow?

- ☐ A) 35
- ☐ B) 34
- ☐ C) 17
- ☐ D) 51
- ☐ E) 33

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3 A bag contains 6 green, 3 red sweets. One is picked at random. What is the probability that it is not red?

- ☐ A) 2/3
- ☐ B) 3/5
- ☐ C) 2
- ☐ D) 1/9
- ☐ E) 1/3

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4 The probability of a seed growing is 1/2. 12 seeds are planted. How many seeds would you expect to grow?

- [ ] A) 5
- [ ] B) 12
- [ ] C) 24
- [ ] D) 6
- [ ] E) 7

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5 The probability of a player scoring a penalty is 1/2. A player takes 38 penalties. How many penalties would you expect to be scored?

- [ ] A) 18
- [ ] B) 38
- [ ] C) 76
- [ ] D) 20
- [ ] E) 19

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6 A box contains 9 blue, 1 white cubes. One is picked at random. What is the probability that it is not white?

- [ ] A) 9/10
- [ ] B) 9
- [ ] C) 9/11
- [ ] D) 1/10
- [ ] E) 1/9

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7 The probabilities of red, blue and green are 0.1, 0.1 and 0.2. Only one other outcome (yellow) is possible. What is its probability?

- [ ] A) 0.5
- [ ] B) 0.8
- [ ] C) 0.6
- [ ] D) 0.4
- [ ] E) 0.7

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8 The probability of a spinner landing on red is 1/5. The spinner is spun 95 times. How many times would you expect it to land on red?

- [ ] A) 95
- [ ] B) 20
- [ ] C) 76
- [ ] D) 475
- [ ] E) 19

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9 A jar contains 5 orange, 7 blue marbles. One is picked at random. What is the probability that it is orange?

- [ ] A) 5/7
- [ ] B) 5/12
- [ ] C) 5/13
- [ ] D) 1/2
- [ ] E) 7/12

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10 Tom rolls a fair spinner numbered 1 to 10. What is the probability that the spinner shows a number less than or equal to 3?

(1)

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11 A box contains 3 red, 5 black cubes. One is picked at random. What is the probability that it is black?

- [ ] A) 5/3
- [ ] B) 1/8
- [ ] C) 3/8
- [ ] D) 1/2
- [ ] E) 5/8

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12 The probability of a player scoring a penalty is 2/3. A player takes 33 penalties. How many penalties would you expect to be scored?

- [ ] A) 66
- [ ] B) 11
- [ ] C) 22
- [ ] D) 23
- [ ] E) 21

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13 A jar contains 2 blue, 8 yellow, 10 white marbles. One is picked at random. What is the probability that it is blue?

- [ ] A) 1/9
- [ ] B) 1/3
- [ ] C) 1/20
- [ ] D) 1/10
- [ ] E) 9/10

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14 The probability of a seed growing is 3/4. 56 seeds are planted. How many seeds would you expect to grow?

- [ ] A) 42
- [ ] B) 43
- [ ] C) 168
- [ ] D) 41
- [ ] E) 14

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15 A jar contains 2 blue, 8 white marbles. One is picked at random. What is the probability that it is blue?

- [ ] A) 2/11
- [ ] B) 1/4
- [ ] C) 4/5
- [ ] D) 1/10
- [ ] E) 1/5

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16 The probabilities of win, draw and lose are 0.2, 0.2 and 0.2. Only one other outcome (abandoned) is possible. What is its probability?

- [ ] A) 0.5
- [ ] B) 0.4
- [ ] C) 0.6
- [ ] D) 0.3
- [ ] E) 0.8

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17 A jar contains 11 black, 10 green marbles. One is picked at random. What is the probability that it is black?

- [ ] A) 1/21
- [ ] B) 10/21
- [ ] C) 1/2
- [ ] D) 11/21
- [ ] E) 11/10

---

18 A box contains 9 white, 1 yellow cubes. One is picked at random. What is the probability that it is white?

- [ ] A) 9
- [ ] B) 1/2
- [ ] C) 9/10
- [ ] D) 1/10
- [ ] E) 9/11

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19 The probabilities of rain, snow and sunshine are 0.1, 0.4 and 0.3. Only one other outcome (fog) is possible. What is its probability?

- [ ] A) 0.7
- [ ] B) 0.3
- [ ] C) 0.2
- [ ] D) 0.9
- [ ] E) 0.8

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20 A jar contains 3 red, 8 blue, 5 orange marbles. One is picked at random. What is the probability that it is blue?

- [ ] A) 1/3
- [ ] B) 1
- [ ] C) 1/16
- [ ] D) 1/2
- [ ] E) 8/17

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21 A box contains 6 green, 7 black cubes. One is picked at random. What is the probability that it is green?

- [ ] A) 1/13
- [ ] B) 3/7
- [ ] C) 7/13
- [ ] D) 6/7
- [ ] E) 6/13

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22 The probability of a seed growing is 1/8. 40 seeds are planted. How many seeds would you expect to grow?

- [ ] A) 5
- [ ] B) 35
- [ ] C) 6
- [ ] D) 40
- [ ] E) 320

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23 A jar contains 1 blue, 6 green marbles. One is picked at random. What is the probability that it is blue?

- [ ] A) 1/6
- [ ] B) 1/2
- [ ] C) 6/7
- [ ] D) 1/8
- [ ] E) 1/7

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24 A bag contains 6 white, 6 red, 3 black counters. One is picked at random. What is the probability that it is red?

- [ ] A) 2/3
- [ ] B) 1/15
- [ ] C) 2/5
- [ ] D) 3/5
- [ ] E) 3/8

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25 The probability of a seed growing is 1/6. 48 seeds are planted. How many seeds would you expect to grow?

- [ ] A) 288
- [ ] B) 8
- [ ] C) 40
- [ ] D) 9
- [ ] E) 7

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26 A bag contains 2 red, 6 blue counters. One is picked at random. What is the probability that it is blue?

- [ ] A) 3/4
- [ ] B) 3
- [ ] C) 2/3
- [ ] D) 1/8
- [ ] E) 1/4

---

27 The probabilities of win and draw are 0.2 and 0.1. Only one other outcome (lose) is possible. What is its probability?

- [ ] A) 0.3
- [ ] B) 0.9
- [ ] C) 0.8
- [ ] D) 0.7
- [ ] E) 0.6

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28 A bag contains 9 white, 5 orange counters. One is picked at random. What is the probability that it is white?

- [ ] A) 9/14
- [ ] B) 9/5
- [ ] C) 1/14
- [ ] D) 1/2
- [ ] E) 5/14

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29 The probability of a player scoring a penalty is 1/4. A player takes 60 penalties. How many penalties would you expect to be scored?

- [ ] A) 60
- [ ] B) 15
- [ ] C) 14
- [ ] D) 45
- [ ] E) 240

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30 Which of these shows a probability greater than 1 that cannot be correct for a single event?

- [ ] A) 1/2
- [ ] B) 3/4
- [ ] C) 5/4
- [ ] D) 0
- [ ] E) 1

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31 A bag contains 7 white marbles and 3 black marbles. One marble is drawn at random. Calculate the probability that it is not white. Give your answer in simplest form.

(2)

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Mark scheme · 2.105 Probability Scale and Simple Outcomes: 30-minute Pack

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

Question 1

correct option E (4/7) cao **B1**

Answer: E) 4/7

Question 2

correct option B (34) cao **B1**

Answer: B) 34

Question 3

correct option A (2/3) cao **B1**

Answer: A) 2/3

Question 4

correct option D (6) cao **B1**

Answer: D) 6

Question 5

correct option E (19) cao **B1**

Answer: E) 19

Question 6

correct option A (9/10) cao **B1**

Answer: A) 9/10

Question 7

correct option C (0.6) cao **B1**

Answer: C) 0.6

Question 8

correct option E (19) cao **B1**

Answer: E) 19

Question 9

correct option B (5/12) cao **B1**

Answer: B) 5/12

Question 10

3/10 cao **B1**

Answer: 3/10

Question 11

correct option E (5/8) cao **B1**

Answer: E) 5/8

Question 12

correct option C (22) cao **B1**

Answer: C) 22

Question 13

correct option D (1/10) cao **B1**

Answer: D) 1/10

Question 14

correct option A (42) cao **B1**

Answer: A) 42

Question 15

correct option E (1/5) cao **B1**

Answer: E) 1/5

Question 16

correct option B (0.4) cao **B1**

Answer: B) 0.4

Question 17

correct option D (11/21) cao **B1**

Answer: D) 11/21

Question 18

correct option C (9/10) cao **B1**

Answer: C) 9/10

Question 19

correct option C (0.2) cao **B1**

Answer: C) 0.2

Question 20

correct option D (1/2) cao **B1**

Answer: D) 1/2

Question 21

correct option E (6/13) cao **B1**

Answer: E) 6/13

Question 22

correct option A (5) cao **B1**

Answer: A) 5

Question 23

correct option E (1/7) cao **B1**

Answer: E) 1/7

Question 24

correct option C (2/5) cao **B1**

Answer: C) 2/5

Question 25

correct option B (8) cao **B1**

Answer: B) 8

Question 26

correct option A (3/4) cao **B1**

Answer: A) 3/4

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Question 27

correct option D (0.7) cao **B1**

Answer: D) 0.7

Question 28

correct option A (9/14) cao **B1**

Answer: A) 9/14

Question 29

correct option B (15) cao **B1**

Answer: B) 15

Question 30

correct option C (5/4) cao **B1**

Answer: C) 5/4

Question 31

method: count not white as 3 seen **M1**

3/10 cao **A1**

Answer: 3/10

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