2.105 Probability Scale and Simple Outcomes: Test Pack

GL ASSESSMENT GL-11PLUS-MATHS · Calculators not allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A bag contains 3 red, 2 blue and 5 yellow counters. Two counters are drawn with replacement (the first counter is put back before drawing again). Calculate the probability that both counters drawn are blue. Give your answer in simplest form.

(3)

---

2 The probability of a seed growing is 1/4. 40 seeds are planted. How many seeds would you expect to grow?

- ☐ A) 9
- ☐ B) 40
- ☐ C) 30
- ☐ D) 160
- ☐ E) 10

---

3 The probabilities of red, blue and green are 0.1, 0.2 and 0.4. Only one other outcome (yellow) is possible. What is its probability?

- ☐ A) 0.6
- ☐ B) 0.3
- ☐ C) 0.4
- ☐ D) 0.7
- ☐ E) 0.9

© Revision Library | revisionlibrary.co.uk

4 Which fraction is equivalent to the probability 0.5?

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

---

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

- [ ] A) 1/7
- [ ] B) 1/2
- [ ] C) 6/7
- [ ] D) 3/4
- [ ] E) 6

---

6 A jar contains 7 red, 4 blue marbles. One is picked at random. What is the probability that it is not red?

- [ ] A) 7/4
- [ ] B) 7/11
- [ ] C) 4/7
- [ ] D) 4/11
- [ ] E) 1/3

---

7 The probabilities of rain, snow and sunshine are 0.1, 0.2 and 0.2. Only one other outcome (fog) is possible. What is its probability?

- [ ] A) 0.9
- [ ] B) 0.5
- [ ] C) 0.4
- [ ] D) 0.8
- [ ] E) 0.6

© Revision Library | revisionlibrary.co.uk

8 The probability of a spinner landing on red is 3/10. The spinner is spun 190 times. How many times would you expect it to land on red?

- [ ] A) 57
- [ ] B) 58
- [ ] C) 133
- [ ] D) 19
- [ ] E) 570

---

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

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

---

10 The probability of a spinner landing on red is 3/4. The spinner is spun 12 times. How many times would you expect it to land on red?

- [ ] A) 3
- [ ] B) 36
- [ ] C) 16
- [ ] D) 9
- [ ] E) 8

---

11 The probability of a spinner landing on red is 1/2. The spinner is spun 24 times. How many times would you expect it to land on red?

- [ ] A) 13
- [ ] B) 48
- [ ] C) 24
- [ ] D) 11
- [ ] E) 12

© Revision Library | revisionlibrary.co.uk

12 The probability of a seed growing is 1/5. 80 seeds are planted. How many seeds would you expect to grow?

- [ ] A) 400
- [ ] B) 15
- [ ] C) 64
- [ ] D) 16
- [ ] E) 17

---

13 A bag contains 6 green, 6 black, 4 yellow counters. One is picked at random. What is the probability that it is not black?

- [ ] A) 5/8
- [ ] B) 3/8
- [ ] C) 5/3
- [ ] D) 3/5
- [ ] E) 10/17

---

14 A box contains 9 red, 4 yellow cubes. One is picked at random. What is the probability that it is yellow?

- [ ] A) 1/2
- [ ] B) 1/13
- [ ] C) 4/9
- [ ] D) 9/13
- [ ] E) 4/13

---

15 A box contains 6 green, 2 white, 10 blue cubes. One is picked at random. What is the probability that it is white?

- [ ] A) 1/9
- [ ] B) 1/3
- [ ] C) 1/18
- [ ] D) 8/9
- [ ] E) 1/8

© Revision Library | revisionlibrary.co.uk

16 A jar contains 7 yellow, 2 green, 3 red marbles. One is picked at random. What is the probability that it is green?

- [ ] A) 1/3
- [ ] B) 2/13
- [ ] C) 1/5
- [ ] D) 1/6
- [ ] E) 5/6

---

17 A box contains 4 black, 3 red cubes. One is picked at random. What is the probability that it is red?

- [ ] A) 1/7
- [ ] B) 3/4
- [ ] C) 3/7
- [ ] D) 3/8
- [ ] E) 4/7

---

18 A box contains 6 green, 4 blue cubes. One is picked at random. What is the probability that it is green?

- [ ] A) 2/5
- [ ] B) 3/5
- [ ] C) 1/10
- [ ] D) 1/2
- [ ] E) 3/2

---

19 The probabilities of red, blue and green are 0.1, 0.3 and 0.3. Only one other outcome (yellow) is possible. What is its probability?

- [ ] A) 0.4
- [ ] B) 0.7
- [ ] C) 0.2
- [ ] D) 0.3
- [ ] E) 0.9

© Revision Library | revisionlibrary.co.uk

20 The probability of a seed growing is 4/5. 90 seeds are planted. How many seeds would you expect to grow?

- [ ] A) 18
- [ ] B) 73
- [ ] C) 360
- [ ] D) 72
- [ ] E) 71

---

21 The probabilities of win and draw are 0.2 and 0.4. Only one other outcome (lose) is possible. What is its probability?

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

---

22 The probability of a spinner landing on red is 1/6. The spinner is spun 66 times. How many times would you expect it to land on red?

- [ ] A) 11
- [ ] B) 12
- [ ] C) 55
- [ ] D) 10
- [ ] E) 396

---

23 A bag contains 13 yellow, 3 blue, 5 green counters. One is picked at random. What is the probability that it is blue?

- [ ] A) 6/7
- [ ] B) 1/7
- [ ] C) 1/3
- [ ] D) 1/21
- [ ] E) 1/6

© Revision Library | revisionlibrary.co.uk

24 A jar contains 13 yellow, 6 red, 6 white marbles. One is picked at random. What is the probability that it is yellow?

- [ ] A) 1/25
- [ ] B) 12/25
- [ ] C) 1/2
- [ ] D) 13/12
- [ ] E) 13/25

---

25 The probability of a spinner landing on red is 5/6. The spinner is spun 78 times. How many times would you expect it to land on red?

- [ ] A) 390
- [ ] B) 13
- [ ] C) 65
- [ ] D) 66
- [ ] E) 64

---

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

- [ ] A) 4
- [ ] B) 9
- [ ] C) 18
- [ ] D) 7
- [ ] E) 8

---

27 A jar contains 9 red, 11 white marbles. One is picked at random. What is the probability that it is red?

- [ ] A) 3/7
- [ ] B) 1/20
- [ ] C) 11/20
- [ ] D) 9/20
- [ ] E) 9/11

© Revision Library | revisionlibrary.co.uk

28 A bag contains 2 red, 1 orange, 3 blue counters. One is picked at random. What is the probability that it is not red?

- [ ] A) 2
- [ ] B) 2/3
- [ ] C) 1/6
- [ ] D) 4/7
- [ ] E) 1/3

---

29 The probabilities of red and blue are 0.3 and 0.3. Only one other outcome (green) is possible. What is its probability?

- [ ] A) 0.5
- [ ] B) 0.6
- [ ] C) 0.4
- [ ] D) 0.3
- [ ] E) 0.7

---

30 The probabilities of win and draw are 0.2 and 0.3. Only one other outcome (lose) is possible. What is its probability?

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

---

31 A jar contains 8 blue, 8 green, 4 white marbles. One is picked at random. What is the probability that it is blue?

- [ ] A) 2/3
- [ ] B) 1/3
- [ ] C) 2/5
- [ ] D) 3/5
- [ ] E) 1/20

© Revision Library | revisionlibrary.co.uk

32 A box contains 5 white, 12 blue, 13 red cubes. One is picked at random. What is the probability that it is not white?

- [ ] A) 25/31
- [ ] B) 5/6
- [ ] C) 5
- [ ] D) 1/30
- [ ] E) 1/6

---

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

- [ ] A) 0.6
- [ ] B) 0.5
- [ ] C) 0.4
- [ ] D) 0.9
- [ ] E) 0.7

---

34 The probability of a spinner landing on red is 1/2. The spinner is spun 40 times. How many times would you expect it to land on red?

- [ ] A) 19
- [ ] B) 80
- [ ] C) 20
- [ ] D) 21
- [ ] E) 40

---

35 A jar contains 3 purple, 13 orange marbles. One is picked at random. What is the probability that it is not orange?

- [ ] A) 3/17
- [ ] B) 3/13
- [ ] C) 3/16
- [ ] D) 1/16
- [ ] E) 13/16

© Revision Library | revisionlibrary.co.uk

36 A bag contains 4 red, 8 purple counters. One is picked at random. What is the probability that it is red?

- [ ] A) 1/12
- [ ] B) 4/13
- [ ] C) 2/3
- [ ] D) 1/3
- [ ] E) 1/2

---

37 The probability of a seed growing is 3/5. 15 seeds are planted. How many seeds would you expect to grow?

- [ ] A) 10
- [ ] B) 6
- [ ] C) 9
- [ ] D) 25
- [ ] E) 3

---

38 The probability of a player scoring a penalty is 1/3. A player takes 60 penalties. How many penalties would you expect to be scored?

- [ ] A) 180
- [ ] B) 60
- [ ] C) 19
- [ ] D) 40
- [ ] E) 20

---

39 A jar contains 13 yellow, 7 purple marbles. One is picked at random. What is the probability that it is yellow?

- [ ] A) 7/20
- [ ] B) 13/21
- [ ] C) 13/20
- [ ] D) 1/20
- [ ] E) 13/7

© Revision Library | revisionlibrary.co.uk

40 A bag contains 10 yellow, 2 purple, 12 orange sweets. One is picked at random. What is the probability that it is yellow?

- [ ] A) 1/3
- [ ] B) 5/12
- [ ] C) 7/12
- [ ] D) 2/5
- [ ] E) 5/7

---

41 The probability of a player scoring a penalty is 1/2. A player takes 30 penalties. How many penalties would you expect to be scored?

- [ ] A) 60
- [ ] B) 30
- [ ] C) 14
- [ ] D) 15
- [ ] E) 16

---

42 The probability of a seed growing is 2/3. 30 seeds are planted. How many seeds would you expect to grow?

- [ ] A) 60
- [ ] B) 45
- [ ] C) 21
- [ ] D) 10
- [ ] E) 20

---

43 A bag contains 5 red, 3 blue and 2 green counters. One counter is chosen at random. List all the possible colours you could draw.

(1)

© Revision Library | revisionlibrary.co.uk

44 A bag contains 8 blue, 10 black counters. One is picked at random. What is the probability that it is not black?

- [ ] A) 4/5
- [ ] B) 8/19
- [ ] C) 5/4
- [ ] D) 5/9
- [ ] E) 4/9

---

45 A box contains 9 red, 9 purple, 3 blue cubes. One is picked at random. What is the probability that it is not purple?

- [ ] A) 4/3
- [ ] B) 3/7
- [ ] C) 4/7
- [ ] D) 1/21
- [ ] E) 6/11

---

46 A jar contains 6 orange, 1 black, 9 white marbles. One is picked at random. What is the probability that it is white?

- [ ] A) 9/16
- [ ] B) 1/16
- [ ] C) 1/3
- [ ] D) 9/7
- [ ] E) 7/16

---

47 The probability of a spinner landing on red is 5/6. The spinner is spun 66 times. How many times would you expect it to land on red?

- [ ] A) 54
- [ ] B) 55
- [ ] C) 56
- [ ] D) 11
- [ ] E) 330

© Revision Library | revisionlibrary.co.uk

48 The probability of a player scoring a penalty is 7/8. A player takes 24 penalties. How many penalties would you expect to be scored?

- [ ] A) 3
- [ ] B) 21
- [ ] C) 168
- [ ] D) 22
- [ ] E) 20

---

49 The probabilities of win, draw and lose are 0.1, 0.1 and 0.3. Only one other outcome (abandoned) is possible. What is its probability?

- [ ] A) 0.4
- [ ] B) 0.9
- [ ] C) 0.5
- [ ] D) 0.6
- [ ] E) 0.7

---

50 The probability of a spinner landing on red is 5/6. The spinner is spun 102 times. How many times would you expect it to land on red?

- [ ] A) 86
- [ ] B) 84
- [ ] C) 17
- [ ] D) 510
- [ ] E) 85

---

51 The probability of a spinner landing on red is 5/8. The spinner is spun 112 times. How many times would you expect it to land on red?

- [ ] A) 70
- [ ] B) 42
- [ ] C) 14
- [ ] D) 560
- [ ] E) 71

© Revision Library | revisionlibrary.co.uk

52 The probability of a seed growing is 2/5. 55 seeds are planted. How many seeds would you expect to grow?

- [ ] A) 110
- [ ] B) 23
- [ ] C) 11
- [ ] D) 33
- [ ] E) 22

---

53 Which decimal is the same as the probability 1/4?

- [ ] A) 0.2
- [ ] B) 0.25
- [ ] C) 0.4
- [ ] D) 0.5
- [ ] E) 0.75

---

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

- [ ] A) 8/9
- [ ] B) 1/9
- [ ] C) 1/18
- [ ] D) 1/8
- [ ] E) 1/3

---

55 A box contains 4 blue, 3 orange, 7 black cubes. One is picked at random. What is the probability that it is blue?

- [ ] A) 2/5
- [ ] B) 2/7
- [ ] C) 4/15
- [ ] D) 1/14
- [ ] E) 5/7

© Revision Library | revisionlibrary.co.uk

56 A coin is tossed and a 4-sided spinner labelled A, B, C and D is spun once.

(a) List the sample space for the combined experiment using H or T for the coin and the spinner letter. **(1)**

(b) Calculate the probability of getting Heads and spinner B. **(1)**

---

57 Two fair coins are tossed once.

(a) List the sample space for the two coin tosses. Give the outcomes using H and T. **(1)**

(b) Calculate the probability that both coins show heads. **(1)**

© Revision Library | revisionlibrary.co.uk

Mark scheme · 2.105 Probability Scale and Simple Outcomes: Test Pack

Question 1

method: probability of blue on one draw = 2/10 (2 blue out of 10 total) **M1**

method: with replacement multiply probabilities: (2/10) x (2/10) = 4/100 **M1**

4/100 simplified to 1/25 cao **A1**

Answer: 1/25 (one twenty fifth).

Question 2

correct option E (10) cao **B1**

Answer: E) 10

Question 3

correct option B (0.3) cao **B1**

Answer: B) 0.3

Question 4

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

Answer: C) 1/2

Question 5

correct option C (6/7) cao **B1**

Answer: C) 6/7

Question 6

correct option D (4/11) cao **B1**

Answer: D) 4/11

Question 7

correct option B (0.5) cao **B1**

Answer: B) 0.5

Question 8

correct option A (57) cao **B1**

Answer: A) 57

Question 9

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

Answer: B) 0.6

Question 10

correct option D (9) cao **B1**

Answer: D) 9

Question 11

correct option E (12) cao **B1**

Answer: E) 12

Question 12

correct option D (16) cao **B1**

Answer: D) 16

Question 13

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

Answer: A) 5/8

Question 14

correct option E (4/13) cao **B1**

Answer: E) 4/13

Question 15

correct option A (1/9) cao **B1**

Answer: A) 1/9

Question 16

correct option D (1/6) cao **B1**

Answer: D) 1/6

Question 17

correct option C (3/7) cao **B1**

Answer: C) 3/7

Question 18

correct option B (3/5) cao **B1**

Answer: B) 3/5

Question 19

correct option D (0.3) cao **B1**

Answer: D) 0.3

Question 20

correct option D (72) cao **B1**

Answer: D) 72

Question 21

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

Answer: A) 0.4

Question 22

correct option A (11) cao **B1**

Answer: A) 11

Question 23

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

Answer: B) 1/7

Question 24

correct option E (13/25) cao **B1**

Answer: E) 13/25

Question 25

correct option C (65) cao **B1**

Answer: C) 65

Question 26

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

Answer: E) 8

Question 27

correct option D (9/20) cao **B1**

Answer: D) 9/20

© Revision Library | revisionlibrary.co.uk

Question 28

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

Answer: B) 2/3

Question 29

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

Answer: C) 0.4

Question 30

correct option A (0.5) cao **B1**

Answer: A) 0.5

Question 31

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

Answer: C) 2/5

Question 32

correct option B (5/6) cao **B1**

Answer: B) 5/6

Question 33

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

Answer: A) 0.6

Question 34

correct option C (20) cao **B1**

Answer: C) 20

Question 35

correct option C (3/16) cao **B1**

Answer: C) 3/16

Question 36

correct option D (1/3) cao **B1**

Answer: D) 1/3

Question 37

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

Answer: C) 9

Question 38

correct option E (20) cao **B1**

Answer: E) 20

Question 39

correct option C (13/20) cao **B1**

Answer: C) 13/20

Question 40

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

Answer: B) 5/12

Question 41

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

Answer: D) 15

Question 42

correct option E (20) cao **B1**

Answer: E) 20

Question 43

correct sample space {red, blue, green} cao **B1**

Answer: red, blue, green

Question 44

correct option E (4/9) cao **B1**

Answer: E) 4/9

Question 45

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

Answer: C) 4/7

Question 46

correct option A (9/16) cao **B1**

Answer: A) 9/16

Question 47

correct option B (55) cao **B1**

Answer: B) 55

Question 48

correct option B (21) cao **B1**

Answer: B) 21

Question 49

correct option C (0.5) cao **B1**

Answer: C) 0.5

Question 50

correct option E (85) cao **B1**

Answer: E) 85

Question 51

correct option A (70) cao **B1**

Answer: A) 70

Question 52

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

Answer: E) 22

Question 53

correct option B (0.25) cao **B1**

Answer: B) 0.25

Question 54

correct option B (1/9) cao **B1**

Answer: B) 1/9

Question 55

correct option B (2/7) cao **B1**

Answer: B) 2/7

Question 56

(a) correct sample space {H A, H B, H C, H D, T A, T B, T C, T D} cao **B1**

(a) Answer: HA, HB, HC, HD, TA, TB, TC, TD

(b) 1/8 cao **B1**

(b) Answer: 1/8

© Revision Library | revisionlibrary.co.uk

Question 57

(a) correct sample space {HH, HT, TH, TT} cao **B1**

(a) Answer: HH, HT, TH, TT

(b) 1/4 cao **B1**

(b) Answer: 1/4

© Revision Library | revisionlibrary.co.uk