2.6 Ratio and Proportion: 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 Simplify the ratio 18 : 24 to its simplest form.

(1)

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2 A bag contains 8 red counters and 12 blue counters. Write the ratio of red counters to blue counters in its simplest form.

(1)

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3 Complete the missing number: 3 : 5 = 12 : ___

(1)

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4 Which of these ratios is NOT equivalent to 3 : 4?

- ☐ A) 6 : 8
- ☐ B) 9 : 12
- ☐ C) 12 : 15
- ☐ D) 15 : 20

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5 1 km/h is equivalent to 5/18 m/s. Convert a speed of 90 km/h into m/s.

(2)

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6 The ratio of red marbles to blue marbles in a jar is 3 : 7. Calculate what percentage of the marbles in the jar are blue.

(2)

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7 Ethan has 1400 ml of juice and 5 litres of water. What is the ratio of juice to water in its simplest form?

- ☐ A) 7:25
- ☐ B) 280000:1
- ☐ C) 280:1
- ☐ D) 1400:5000
- ☐ E) 25:7

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8 Amara has 650 ml of juice and 1 litre of water. What is the ratio of juice to water in its simplest form?

- ☐ A) 20:13
- ☐ B) 13:20
- ☐ C) 650:1000
- ☐ D) 650000:1
- ☐ E) 650:1

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9 Shop A sells 6 pens for £2.40. Shop B sells 9 pens for £3.15. Work out which shop offers better value for money, showing your working.

(3)

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10 Isla, Leo and Harry share £110 in the ratio 8:2:1. How much money does Leo get?

- ☐ A) £55
- ☐ B) £21
- ☐ C) £10
- ☐ D) £19
- ☐ E) £20

---

11 £72 is shared between Priya, Tom and Sara in the ratio 2 : 3 : 4.

(a) Calculate how much Sara receives. **(2)**

.....

(b) Calculate how much more Sara receives than Priya. **(1)**

.....

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12 Anya has 250 ml of juice and 6 litres of water. What is the ratio of juice to water in its simplest form?

- ☐ A) 125:3
- ☐ B) 1:24
- ☐ C) 24:1
- ☐ D) 250:6000
- ☐ E) 1:25

---

13 Megan has 600 cm of ribbon and 5 m of string. What is the ratio of ribbon to string in its simplest form?

- ☐ A) 5:6
- ☐ B) 12000:1
- ☐ C) 6:11
- ☐ D) 120:1
- ☐ E) 6:5

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14 Rhys and Niamh share 6 raffle tickets in the ratio 1:2. How many raffle tickets does Rhys get?

- ☐ A) 2
- ☐ B) 6
- ☐ C) 4
- ☐ D) 3
- ☐ E) 1

---

15 Esme and Ewan share 78 plants in the ratio 7:6. How many plants does Esme get?

- ☐ A) 39
- ☐ B) 36
- ☐ C) 42
- ☐ D) 43
- ☐ E) 6

---

16 In an animal shelter, the ratio of cats to dogs is 4 : 5.

(a) There are 20 dogs in the shelter. Calculate the number of cats. **(2)**

.....

(b) 8 of the cats are rehomed, and no dogs leave the shelter. Calculate the new ratio of cats to dogs, giving your answer in its simplest form. **(2)**

.....

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17 Megan has 135 minutes of reading and 3 hours of homework. What is the ratio of reading to homework in its simplest form?

- ☐ A) 4:3
- ☐ B) 3:4
- ☐ C) 135:180
- ☐ D) 2700:1
- ☐ E) 45:1

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18 Tom has 650 g of sugar and 2 kg of flour. What is the ratio of sugar to flour in its simplest form?

- [ ] A) 13:40
- [ ] B) 325:1
- [ ] C) 40:13
- [ ] D) 650:2000
- [ ] E) 13:53

---

19 Callum and Isla share £27 in the ratio 4:5. How much money does Callum get?

- [ ] A) £3.00
- [ ] B) £15.00
- [ ] C) £13.50
- [ ] D) £12.00
- [ ] E) £11.00

---

20 Ben has 950 ml of juice and 4 litres of water. What is the ratio of juice to water in its simplest form?

- [ ] A) 80:19
- [ ] B) 19:99
- [ ] C) 19:80
- [ ] D) 237500:1
- [ ] E) 475:2

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21 Anya has 1100 ml of juice and 8 litres of water. What is the ratio of juice to water in its simplest form?

- [ ] A) 11:91
- [ ] B) 11:80
- [ ] C) 1100:8000
- [ ] D) 275:2
- [ ] E) 80:11

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22 Yusuf and Kwame share 154 beads in the ratio 2:9. How many beads does Yusuf get?

- [ ] A) 27
- [ ] B) 14
- [ ] C) 77
- [ ] D) 28
- [ ] E) 126

---

23 Niamh and Harry share 9 raffle tickets in the ratio 1:2. How many raffle tickets does Harry get?

- [ ] A) 5
- [ ] B) 6
- [ ] C) 60
- [ ] D) 3
- [ ] E) 7

---

24 Callum has 1350 g of sugar and 3 kg of flour. What is the ratio of sugar to flour in its simplest form?

- [ ] A) 450000:1
- [ ] B) 9:20
- [ ] C) 20:9
- [ ] D) 450:1
- [ ] E) 1350:3000

---

25 Priya and Imogen share 88 stickers in the ratio 6:5. How many stickers does Imogen get?

- [ ] A) 39
- [ ] B) 48
- [ ] C) 8
- [ ] D) 40
- [ ] E) 44

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26 Ethan, Rhys and Noah share 182 badges in the ratio 3:4:7. How many badges does Ethan get?

- [ ] A) 40
- [ ] B) 143
- [ ] C) 52
- [ ] D) 13
- [ ] E) 39

---

27 Leo and Ben share £33 in the ratio 2:9. How much money does Leo get?

- [ ] A) £5.00
- [ ] B) £6.00
- [ ] C) £3.00
- [ ] D) £27.00
- [ ] E) £7.00

---

28 Kwame and Yusuf share 108 badges in the ratio 2:7. How many badges does Kwame get?

- [ ] A) 84
- [ ] B) 24
- [ ] C) 12
- [ ] D) 25
- [ ] E) 54

---

29 Declan and Zainab share £55 in the ratio 6:5. How much money does Zainab get?

- [ ] A) £11.00
- [ ] B) £5.00
- [ ] C) £30.00
- [ ] D) £24.00
- [ ] E) £25.00

---

30 Aisha and Harry share £54 in the ratio 5:4. How much money does Harry get?

- [ ] A) £23.00
- [ ] B) £24.00
- [ ] C) £6.00
- [ ] D) £27.00
- [ ] E) £30.00

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31 Isla and Kwame share 99 raffle tickets in the ratio 8:1. How many raffle tickets does Kwame get?

- [ ] A) 11
- [ ] B) 88
- [ ] C) 12
- [ ] D) 99
- [ ] E) 10

---

32 Chloe, Callum and Hamza share 48 conkers in the ratio 6:3:7. How many conkers does Hamza get?

- [ ] A) 18
- [ ] B) 3
- [ ] C) 16
- [ ] D) 21
- [ ] E) 22

---

33 Sienna and Isla share 35 stickers in the ratio 4:3. How many stickers does Sienna get?

- [ ] A) 19
- [ ] B) 21
- [ ] C) 5
- [ ] D) 20
- [ ] E) 15

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34 Ben and Noah share 81 conkers in the ratio 5:4. How many conkers does Noah get?

- [ ] A) 45
- [ ] B) 36
- [ ] C) 37
- [ ] D) 35
- [ ] E) 9

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35 Leo and Rhys share 135 stamps in the ratio 7:8. How many stamps does Rhys get?

- [ ] A) 73
- [ ] B) 71
- [ ] C) 63
- [ ] D) 72
- [ ] E) 9

---

36 Esme and Poppy share 110 football cards in the ratio 6:5. How many football cards does Poppy get?

- [ ] A) 51
- [ ] B) 50
- [ ] C) 49
- [ ] D) 60
- [ ] E) 10

---

37 Ethan and Ewan share £108 in the ratio 4:5. How much money does Ethan get?

- [ ] A) £60.00
- [ ] B) £49.00
- [ ] C) £48.00
- [ ] D) £47.00
- [ ] E) £12.00

---

38 Zainab and Sienna share 30 stamps in the ratio 1:5. How many stamps does Zainab get?

- [ ] A) 25
- [ ] B) 5
- [ ] C) 15
- [ ] D) 30
- [ ] E) 4

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39 Kwame and Chloe share 150 marbles in the ratio 7:3. How many marbles does Chloe get?

- [ ] A) 46
- [ ] B) 44
- [ ] C) 105
- [ ] D) 15
- [ ] E) 45

---

40 Yusuf and Poppy share 49 plants in the ratio 2:5. How many plants does Yusuf get?

- [ ] A) 35
- [ ] B) 14
- [ ] C) 7
- [ ] D) 15
- [ ] E) 13

---

41 Kofi, Jack and Aisha share 300 raffle tickets in the ratio 9:4:7. How many raffle tickets does Aisha get?

- [ ] A) 105
- [ ] B) 106
- [ ] C) 135
- [ ] D) 15
- [ ] E) 104

---

42 Harry and Sienna share 36 stamps in the ratio 3:1. How many stamps does Sienna get?

- [ ] A) 36
- [ ] B) 9
- [ ] C) 27
- [ ] D) 10
- [ ] E) 18

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43 Mei and Ewan share £60 in the ratio 4:1. How much money does Ewan get?

- [ ] A) £30.00
- [ ] B) £60.00
- [ ] C) £48.00
- [ ] D) £11.00
- [ ] E) £12.00

---

44 Maya and Jack share 9 stamps in the ratio 1:2. How many stamps does Maya get?

- [ ] A) 4
- [ ] B) 6
- [ ] C) 9
- [ ] D) 3
- [ ] E) 2

---

45 Fatima, Dylan and Sienna share 72 shells in the ratio 5:1:6. How many shells does Dylan get?

- [ ] A) 24
- [ ] B) 6
- [ ] C) 66
- [ ] D) 72
- [ ] E) 36

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46 Two numbers are in the ratio 4 : 7. Their sum is 121. Calculate the difference between the two numbers.

(3)

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47 A school has 288 pupils. The ratio of pupils who walk, cycle or travel by car to school is 5 : 1 : 3. The number of pupils who cycle is expected to increase by 50%, while the total number of pupils remains 288 and the ratio of walk to car (among the remaining pupils) stays the same as before. Calculate the new ratio of walk to cycle to car, giving your answer in its simplest form.

(4)

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Mark scheme · 2.6 Ratio and Proportion: Test Pack

Question 1

3 : 4 oe cao **B1**

Answer: 3 : 4

Question 2

2 : 3 oe cao **B1**

Answer: 2 : 3

Question 3

20 cao **B1**

Answer: 20

Question 4

C (12:15) cao **B1**

Answer: C) 12 : 15

Question 5

90 x 5/18 oe set up **M1**

25 m/s cao **A1**

Answer: 25 m/s

Question 6

total parts found (3 + 7 = 10) and 7/10 used, or equivalent method **M1**

70% cao **A1**

Answer: 70%

Question 7

correct option A (7:25) cao; convert to ml: 1400:5000 then divide by the highest common factor **B1**

Answer: A) 7:25

Question 8

correct option B (13:20) cao; convert to ml: 650:1000 then divide by the highest common factor **B1**

Answer: B) 13:20

Question 9

price per pen at Shop A found: 2.40/6 = 0.40 **M1**

price per pen at Shop B found: 3.15/9 = 0.35 **M1**

Shop B offers better value (cao, since £0.35 per pen is less than £0.40 per pen) **A1**

Answer: Shop B (£0.35 per pen versus £0.40 per pen at Shop A)

Question 10

correct option E (£20) cao; 110 / 11 = 10 per part, then 10 x 2 = 20 **B1**

Answer: E) £20

Question 11

(a) total parts found (2 + 3 + 4 = 9) and 72/9 = 8 used, or equivalent method **M1**

(a) £32 cao **A1**

(a) Answer: £32

(b) £16 (ft from part a: Priya = 2 x their unit value, then Sara - Priya) **B1**

(b) Answer: £16

Question 12

correct option B (1:24) cao; convert to ml: 250:6000 then divide by the highest common factor **B1**

Answer: B) 1:24

Question 13

correct option E (6:5) cao; convert to cm: 600:500 then divide by the highest common factor **B1**

Answer: E) 6:5

Question 14

correct option A (2) cao; 6 / 3 = 2 per part, then 2 x 1 = 2 **B1**

Answer: A) 2

Question 15

correct option C (42) cao; 78 / 13 = 6 per part, then 6 x 7 = 42 **B1**

Answer: C) 42

Question 16

(a) unit value found: 20/5 = 4, or equivalent method **M1**

(a) 16 cao **A1**

(a) Answer: 16

(b) new number of cats found (ft from part a): 16 - 8 = 8 **M1**

(b) 2 : 5 oe cao **A1**

(b) Answer: 2 : 5

Question 17

correct option B (3:4) cao; convert to minutes: 135:180 then divide by the highest common factor **B1**

Answer: B) 3:4

Question 18

correct option A (13:40) cao; convert to g: 650:2000 then divide by the highest common factor **B1**

Answer: A) 13:40

Question 19

correct option D (£12.00) cao; 27 / 9 = 3 per part, then 3 x 4 = 12 **B1**

Answer: D) £12.00

Question 20

correct option C (19:80) cao; convert to ml: 950:4000 then divide by the highest common factor **B1**

Answer: C) 19:80

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Question 21

correct option B (11:80) cao; convert to ml: 1100:8000 then divide by the highest common factor **B1**

Answer: B) 11:80

Question 22

correct option D (28) cao; 154 / 11 = 14 per part, then 14 x 2 = 28 **B1**

Answer: D) 28

Question 23

correct option B (6) cao; 9 / 3 = 3 per part, then 3 x 2 = 6 **B1**

Answer: B) 6

Question 24

correct option B (9:20) cao; convert to g: 1350:3000 then divide by the highest common factor **B1**

Answer: B) 9:20

Question 25

correct option D (40) cao; 88 / 11 = 8 per part, then 8 x 5 = 40 **B1**

Answer: D) 40

Question 26

correct option E (39) cao; 182 / 14 = 13 per part, then 13 x 3 = 39 **B1**

Answer: E) 39

Question 27

correct option B (£6.00) cao; 33 / 11 = 3 per part, then 3 x 2 = 6 **B1**

Answer: B) £6.00

Question 28

correct option B (24) cao; 108 / 9 = 12 per part, then 12 x 2 = 24 **B1**

Answer: B) 24

Question 29

correct option E (£25.00) cao; 55 / 11 = 5 per part, then 5 x 5 = 25 **B1**

Answer: E) £25.00

Question 30

correct option B (£24.00) cao; 54 / 9 = 6 per part, then 6 x 4 = 24 **B1**

Answer: B) £24.00

Question 31

correct option A (11) cao; 99 / 9 = 11 per part, then 11 x 1 = 11 **B1**

Answer: A) 11

Question 32

correct option D (21) cao; 48 / 16 = 3 per part, then 3 x 7 = 21 **B1**

Answer: D) 21

Question 33

correct option D (20) cao; 35 / 7 = 5 per part, then 5 x 4 = 20 **B1**

Answer: D) 20

Question 34

correct option B (36) cao; 81 / 9 = 9 per part, then 9 x 4 = 36 **B1**

Answer: B) 36

Question 35

correct option D (72) cao; 135 / 15 = 9 per part, then 9 x 8 = 72 **B1**

Answer: D) 72

Question 36

correct option B (50) cao; 110 / 11 = 10 per part, then 10 x 5 = 50 **B1**

Answer: B) 50

Question 37

correct option C (£48.00) cao; 108 / 9 = 12 per part, then 12 x 4 = 48 **B1**

Answer: C) £48.00

Question 38

correct option B (5) cao; 30 / 6 = 5 per part, then 5 x 1 = 5 **B1**

Answer: B) 5

Question 39

correct option E (45) cao; 150 / 10 = 15 per part, then 15 x 3 = 45 **B1**

Answer: E) 45

Question 40

correct option B (14) cao; 49 / 7 = 7 per part, then 7 x 2 = 14 **B1**

Answer: B) 14

Question 41

correct option A (105) cao; 300 / 20 = 15 per part, then 15 x 7 = 105 **B1**

Answer: A) 105

Question 42

correct option B (9) cao; 36 / 4 = 9 per part, then 9 x 1 = 9 **B1**

Answer: B) 9

Question 43

correct option E (£12.00) cao; 60 / 5 = 12 per part, then 12 x 1 = 12 **B1**

Answer: E) £12.00

Question 44

correct option D (3) cao; 9 / 3 = 3 per part, then 3 x 1 = 3 **B1**

Answer: D) 3

Question 45

correct option B (6) cao; 72 / 12 = 6 per part, then 6 x 1 = 6 **B1**

Answer: B) 6

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Question 46

total parts found (4 + 7 = 11) and unit value found: 121/11 = 11	**M1**
dep: the two numbers found (4 x 11 = 44, 7 x 11 = 77)	**M1**
33 cao	**A1**

Answer: 33

Question 47

original numbers found: total parts 5 + 1 + 3 = 9, unit value 288/9 = 32, so walk = 160, cycle = 32, car = 96	**M1**
dep: new cycle number found: 32 x 1.5 = 48	**M1**
dep: remaining pupils (288 - 48 = 240) split in the ratio 5:3 (unit value 240/8 = 30), giving walk = 150 and car = 90	**M1**
25 : 8 : 15 cao	**A1**

Answer: 25 : 8 : 15

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