2.3 Ratio and Proportion: 2-hour Pack

ISEB CE.M3 · Calculator allowed · about 120 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 The ratio of red paint to white paint is 2:11. There are 22 litres of white paint. What is the total amount, in litres?

- ☐ A) 26
- ☐ B) 286
- ☐ C) 121
- ☐ D) 2
- ☐ E) 44

---

2 Isla and Sophie share £60 in the ratio 7:3. How much is the smallest share?

- ☐ A) £12
- ☐ B) £90
- ☐ C) £6
- ☐ D) £24
- ☐ E) £18

---

3 A car drives 60 km at 30 km/h, then 90 km at 90 km/h. What is its average speed for the whole journey, in km/h?

- ☐ A) 50 km/h
- ☐ B) 66.0 km/h
- ☐ C) 75.0 km/h
- ☐ D) 46.0 km/h
- ☐ E) 62.0 km/h

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4 The milk comes in five sizes. Which size is the best value for money?

- [ ] A) 2000 ml for £12.84
- [ ] B) 750 ml for £4.50
- [ ] C) 1000 ml for £6.24
- [ ] D) 400 ml for £2.50
- [ ] E) 500 ml for £3.18

---

5 A recipe for 2 people uses 16 g of butter. How many grams of butter are needed for 9 people?

- [ ] A) 7 g
- [ ] B) 8 g
- [ ] C) 72 g
- [ ] D) 32 g
- [ ] E) 23 g

---

6 On a map with scale 1:10000, two villages near Belfast are 7.3 cm apart. What is the real distance between them, in kilometres?

- [ ] A) 73000 km
- [ ] B) 7.3 km
- [ ] C) 73 km
- [ ] D) 0.73 km
- [ ] E) 0.073 km

---

7 The ratio of red counters to blue counters is 6:7. What percentage of the total is red counters?

- [ ] A) 100/13%
- [ ] B) 600/7%
- [ ] C) 0.6%
- [ ] D) 300/13%
- [ ] E) 600/13%

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8 Chloe and Freddie share 200 marbles in the ratio 3:7. How many does the person with the smallest share get?

- [ ] A) 140
- [ ] B) 300
- [ ] C) 80
- [ ] D) 60
- [ ] E) 40

---

9 A runner travels 126 km in 3 h 30 min. What is its average speed?

- [ ] A) 441 km/h
- [ ] B) 122.5 km/h
- [ ] C) 0.03 km/h
- [ ] D) 0.6 km/h
- [ ] E) 36 km/h

---

10 The paint comes in five sizes. Which size is the best value for money?

- [ ] A) 1500 ml for £7.03
- [ ] B) 1000 ml for £4.69
- [ ] C) 330 ml for £1.42
- [ ] D) 250 ml for £1.19
- [ ] E) 2000 ml for £9.55

---

11 12 painters take 3 days to finish a job, all working at the same rate. How many days would 4 painters take?

- [ ] A) 11 days
- [ ] B) 9 days
- [ ] C) 1 days
- [ ] D) 12 days
- [ ] E) 8 days

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12 On a map with scale 1:25000, two villages near Durham are 3.2 cm apart. What is the real distance between them, in kilometres?

- [ ] A) 0.8 km
- [ ] B) 12.8 km
- [ ] C) 8 km
- [ ] D) 80 km
- [ ] E) 80000 km

---

13 The ratio of red counters to blue counters is 8:9. There are 90 blue counters. How many counters are there altogether?

- [ ] A) 82
- [ ] B) 260
- [ ] C) 98
- [ ] D) 10
- [ ] E) 170

---

14 A runner travels at an average speed of 15 km/h for 40 min. How far does it travel?

- [ ] A) 0.375 km
- [ ] B) 6 km
- [ ] C) 10 km
- [ ] D) 600 km
- [ ] E) 55 km

---

15 The orange juice comes in five sizes. Which size is the best value for money?

- [ ] A) 400 ml for £1.89
- [ ] B) 250 ml for £1.18
- [ ] C) 500 ml for £2.36
- [ ] D) 330 ml for £1.48
- [ ] E) 2000 ml for £9.27

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16 12 gardeners take 35 days to finish a job, all working at the same rate. How many days would 14 gardeners take?

- [ ] A) 420 days
- [ ] B) 30 days
- [ ] C) 37 days
- [ ] D) 33 days
- [ ] E) 490 days

---

17 On a map with scale 1:100000, two villages near Aberdeen are 7.8 cm apart. What is the real distance between them, in kilometres?

- [ ] A) 78 km
- [ ] B) 7.8 km
- [ ] C) 780000 km
- [ ] D) 0.78 km
- [ ] E) 780 km

---

18 The washing liquid comes in five sizes. Which size is the best value for money?

- [ ] A) 400 ml for £2.23
- [ ] B) 1000 ml for £5.30
- [ ] C) 2000 ml for £11.34
- [ ] D) 500 ml for £2.78
- [ ] E) 330 ml for £1.85

---

19 The ratio of cats to dogs is 3:11. What percentage of the total is cats?

- [ ] A) 550/7%
- [ ] B) 0.3%
- [ ] C) 150/7%
- [ ] D) 75/7%
- [ ] E) 50/7%

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20 Nia and Jack share 238 marbles in the ratio 5:9. How many does the person with the largest share get?

- [ ] A) 17
- [ ] B) 85
- [ ] C) 170
- [ ] D) 153
- [ ] E) 1071

---

21 A tractor travels at an average speed of 45 km/h for 1 h 15 min. How far does it travel?

- [ ] A) 56.25 km
- [ ] B) 51.75 km
- [ ] C) 33.75 km
- [ ] D) 3375 km
- [ ] E) 0.6 km

---

22 The lentils comes in five sizes. Which size is the best value for money?

- [ ] A) 300 g for £1.54
- [ ] B) 800 g for £4.11
- [ ] C) 200 g for £1.04
- [ ] D) 750 g for £3.74
- [ ] E) 250 g for £1.20

---

23 A recipe for 10 people uses 500 g of flour. How many grams of flour are needed for 6 people?

- [ ] A) 300 g
- [ ] B) 5000 g
- [ ] C) 496 g
- [ ] D) 50 g
- [ ] E) 504 g

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24 A walk near Belfast is 1.5 km long. How long is it on a map with scale 1:10000, in centimetres?

- [ ] A) 1.5 cm
- [ ] B) 15 cm
- [ ] C) 15000 cm
- [ ] D) 0.15 cm
- [ ] E) 1500 cm

---

25 The ratio of juice to water is 5:2. There are 40 ml of juice. How many ml of water are there?

- [ ] A) 280
- [ ] B) 43
- [ ] C) 80
- [ ] D) 100
- [ ] E) 16

---

26 Rhys and Kiran share 117 stickers in the ratio 5:4. How many does the person with the smallest share get?

- [ ] A) 65
- [ ] B) 39
- [ ] C) 234
- [ ] D) 52
- [ ] E) 13

---

27 A runner travels 60 km in 75 minutes. What is its average speed, in km/h?

- [ ] A) 80 km/h
- [ ] B) 4500 km/h
- [ ] C) 48 km/h
- [ ] D) 1.25 km/h
- [ ] E) 720/17 km/h

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28 The orange juice comes in five sizes. Which size is the best value for money?

- [ ] A) 2000 ml for £7.04
- [ ] B) 500 ml for £1.60
- [ ] C) 250 ml for £0.86
- [ ] D) 1000 ml for £3.46
- [ ] E) 1500 ml for £5.47

---

29 10 builders take 99 days to finish a job, all working at the same rate. How many days would 11 builders take?

- [ ] A) 100 days
- [ ] B) 98 days
- [ ] C) 90 days
- [ ] D) 1089 days
- [ ] E) 990 days

---

30 On a map with scale 1:100000, two villages near Cardiff are 3.8 cm apart. What is the real distance between them, in kilometres?

- [ ] A) 0.38 km
- [ ] B) 38 km
- [ ] C) 380 km
- [ ] D) 3.8 km
- [ ] E) 380000 km

---

31 The ratio of flour to butter is 5:9. There are 45 g of butter. How many g of flour are there?

- [ ] A) 25
- [ ] B) 49
- [ ] C) 50
- [ ] D) 81
- [ ] E) 90

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32 Will, Tom and Ffion share 357 sweets in the ratio 7:6:8. How many does the person with the smallest share get?

- [ ] A) 714
- [ ] B) 255
- [ ] C) 119
- [ ] D) 85
- [ ] E) 102

---

33 A train travels 96 km at an average speed of 80 km/h. How long does the journey take?

- [ ] A) 1 h 12 min
- [ ] B) 1 h 22 min
- [ ] C) 1.12 h
- [ ] D) 1 h 2 min
- [ ] E) 1 h 20 min

---

34 The sugar comes in five sizes. Which size is the best value for money?

- [ ] A) 800 g for £4.27
- [ ] B) 500 g for £2.30
- [ ] C) 600 g for £3.12
- [ ] D) 250 g for £1.25
- [ ] E) 200 g for £1.05

---

35 A recipe for 10 people uses 60 g of sugar. How many grams of sugar are needed for 21 people?

- [ ] A) 49 g
- [ ] B) 71 g
- [ ] C) 126 g
- [ ] D) 1260 g
- [ ] E) 6 g

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36 The ratio of boys to girls is 9:8. There are 40 girls. How many pupils are there altogether?

- [ ] A) 125
- [ ] B) 360
- [ ] C) 5
- [ ] D) 85
- [ ] E) 680

---

37 Zainab and Isla share 119 stickers in the ratio 9:8. How many does the person with the smallest share get?

- [ ] A) 49
- [ ] B) 7
- [ ] C) 63
- [ ] D) 476
- [ ] E) 56

---

38 A walk near York is 2.15 km long. How long is it on a map with scale 1:25000, in centimetres?

- [ ] A) 0.86 cm
- [ ] B) 53750 cm
- [ ] C) 0.086 cm
- [ ] D) 86 cm
- [ ] E) 8.6 cm

---

39 A lorry travels 180 km at an average speed of 72 km/h. How long does the journey take?

- [ ] A) 2 h 30 min
- [ ] B) 2.3 h
- [ ] C) 0.40 h
- [ ] D) 2 h 20 min
- [ ] E) 2 h 40 min

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40 The cheese comes in five sizes. Which size is the best value for money?

- [ ] A) 300 g for £1.73
- [ ] B) 250 g for £1.47
- [ ] C) 400 g for £2.16
- [ ] D) 1000 g for £5.78
- [ ] E) 600 g for £3.47

---

41 A recipe for 8 people uses 72 g of sugar. How many grams of sugar are needed for 9 people?

- [ ] A) 648 g
- [ ] B) 81 g
- [ ] C) 73 g
- [ ] D) 71 g
- [ ] E) 9 g

---

42 A walk near Belfast is 7.4 km long. How long is it on a map with scale 1:25000, in centimetres?

- [ ] A) 1.85 cm
- [ ] B) 2.96 cm
- [ ] C) 296 cm
- [ ] D) 29.6 cm
- [ ] E) 0.296 cm

---

43 Archie and Oliver share £104 in the ratio 6:7. How much is the largest share?

- [ ] A) £64
- [ ] B) £8
- [ ] C) £364
- [ ] D) £48
- [ ] E) £56

---

44 A tractor travels at an average speed of 30 km/h for 30 min. How far does it travel?

- [ ] A) 1 km
- [ ] B) 60 km
- [ ] C) 15 km
- [ ] D) 900 km
- [ ] E) 9 km

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45 The cheese comes in five sizes. Which size is the best value for money?

- [ ] A) 500 g for £2.20
- [ ] B) 1000 g for £4.71
- [ ] C) 400 g for £1.90
- [ ] D) 800 g for £3.73
- [ ] E) 300 g for £1.44

---

46 4 gardeners take 33 days to finish a job, all working at the same rate. How many days would 22 gardeners take?

- [ ] A) 18 days
- [ ] B) 6 days
- [ ] C) 132 days
- [ ] D) 181.5 days
- [ ] E) 51 days

---

47 On a map with scale 1:10000, two villages near York are 0.5 cm apart. What is the real distance between them, in kilometres?

- [ ] A) 0.005 km
- [ ] B) 5000 km
- [ ] C) 5 km
- [ ] D) 0.05 km
- [ ] E) 0.5 km

---

48 The ratio of boys to girls is 8:3. There are 96 boys. How many girls are there?

- [ ] A) 99
- [ ] B) 12
- [ ] C) 256
- [ ] D) 192
- [ ] E) 36

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49 The ratio of boys to girls is 3:4. There are 9 boys. How many pupils are there altogether?

- [ ] A) 5
- [ ] B) 21
- [ ] C) 30
- [ ] D) 10
- [ ] E) 18

---

50 Nia and Mei share 36 marbles in the ratio 7:5. How many does the person with the largest share get?

- [ ] A) 3
- [ ] B) 15
- [ ] C) 21
- [ ] D) 24
- [ ] E) 126

---

51 A lorry travels at an average speed of 60 km/h for 45 min. How far does it travel?

- [ ] A) 0.75 km
- [ ] B) 4/3 km
- [ ] C) 2700 km
- [ ] D) 27 km
- [ ] E) 45 km

---

52 The lentils comes in five sizes. Which size is the best value for money?

- [ ] A) 400 g for £1.83
- [ ] B) 250 g for £1.16
- [ ] C) 800 g for £3.59
- [ ] D) 500 g for £2.20
- [ ] E) 750 g for £3.37

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53 A recipe for 12 people uses 24 g of butter. How many grams of butter are needed for 15 people?

- [ ] A) 360 g
- [ ] B) 3 g
- [ ] C) 30 g
- [ ] D) 2 g
- [ ] E) 288 g

---

54 Mei and Oliver share 64 stickers in the ratio 5:3. How many does the person with the largest share get?

- [ ] A) 8
- [ ] B) 48
- [ ] C) 32
- [ ] D) 40
- [ ] E) 24

---

55 A lorry travels at an average speed of 36 km/h for 20 min. How far does it travel?

- [ ] A) 1.8 km
- [ ] B) 12 km
- [ ] C) 720 km
- [ ] D) 56 km
- [ ] E) 0.56 km

---

56 The cheese comes in five sizes. Which size is the best value for money?

- [ ] A) 750 g for £3.75
- [ ] B) 200 g for £1.05
- [ ] C) 300 g for £1.53
- [ ] D) 800 g for £4.12
- [ ] E) 500 g for £2.60

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57 A recipe for 3 people uses 12 g of sugar. How many grams of sugar are needed for 20 people?

- [ ] A) 29 g
- [ ] B) 4 g
- [ ] C) 80 g
- [ ] D) 36 g
- [ ] E) 240 g

---

58 The ratio of boys to girls is 7:6. There are 98 boys. How many pupils are there altogether?

- [ ] A) 104
- [ ] B) 196
- [ ] C) 1274
- [ ] D) 588
- [ ] E) 182

---

59 Eleni and Oliver share 12 stickers in the ratio 1:3. How many does the person with the largest share get?

- [ ] A) 6
- [ ] B) 18
- [ ] C) 3
- [ ] D) 9
- [ ] E) 12

---

60 A train travels 42 km in 3 h 30 min. What is its average speed?

- [ ] A) 12 km/h
- [ ] B) 38.5 km/h
- [ ] C) 140/11 km/h
- [ ] D) 0.08 km/h
- [ ] E) 45.5 km/h

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61 The washing liquid comes in five sizes. Which size is the best value for money?

- [ ] A) 500 ml for £2.51
- [ ] B) 2000 ml for £9.66
- [ ] C) 1500 ml for £6.90
- [ ] D) 750 ml for £3.69
- [ ] E) 400 ml for £1.91

---

62 12 painters take 145 days to finish a job, all working at the same rate. How many days would 29 painters take?

- [ ] A) 60 days
- [ ] B) 162 days
- [ ] C) 128 days
- [ ] D) 4205 days
- [ ] E) 1740 days

---

63 On a map with scale 1:20000, two villages near York are 3.4 cm apart. What is the real distance between them, in kilometres?

- [ ] A) 6.8 km
- [ ] B) 68000 km
- [ ] C) 68 km
- [ ] D) 0.68 km
- [ ] E) 17 km

---

64 The ratio of cats to dogs is 9:5. There are 63 cats. How many dogs are there?

- [ ] A) 68
- [ ] B) 35
- [ ] C) 126
- [ ] D) 58
- [ ] E) 67

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65 Freddie and Amira share 88 stickers in the ratio 8:3. How many does the person with the smallest share get?

- [ ] A) 64
- [ ] B) 132
- [ ] C) 32
- [ ] D) 8
- [ ] E) 24

---

66 A train travels 45 km at an average speed of 30 km/h. How long does the journey take?

- [ ] A) 0.67 h
- [ ] B) 1 h 30 min
- [ ] C) 1 h 20 min
- [ ] D) 1 h 40 min
- [ ] E) 1.3 h

---

67 The milk comes in five sizes. Which size is the best value for money?

- [ ] A) 500 ml for £2.97
- [ ] B) 1000 ml for £6.10
- [ ] C) 1500 ml for £8.91
- [ ] D) 750 ml for £4.12
- [ ] E) 250 ml for £1.48

---

68 A recipe for 8 people uses 64 g of flour. How many grams of flour are needed for 16 people?

- [ ] A) 56 g
- [ ] B) 1024 g
- [ ] C) 128 g
- [ ] D) 8 g
- [ ] E) 512 g

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69 On a map with scale 1:10000, two villages near York are 1.4 cm apart. What is the real distance between them, in kilometres?

- [ ] A) 0.14 km
- [ ] B) 1.4 km
- [ ] C) 14000 km
- [ ] D) 14 km
- [ ] E) 0.014 km

---

70 The ratio of sand to cement is 1:3. There are 42 kg of cement. What is the difference between the two amounts, in kg?

- [ ] A) 43
- [ ] B) 14
- [ ] C) 56
- [ ] D) 41
- [ ] E) 28

---

71 Callum, Eleni and Grace share 78 stickers in the ratio 1:4:8. What is the difference between the largest and smallest shares?

- [ ] A) 54
- [ ] B) 6
- [ ] C) 78/7
- [ ] D) 36
- [ ] E) 42

---

72 A tractor travels 126 km in 3 h 30 min. What is its average speed?

- [ ] A) 129.5 km/h
- [ ] B) 36 km/h
- [ ] C) 0.03 km/h
- [ ] D) 122.5 km/h
- [ ] E) 420/11 km/h

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73 6 gardeners take 16 days to finish a job, all working at the same rate. How many days would 24 gardeners take?

- [ ] A) 34 days
- [ ] B) 18 days
- [ ] C) 4 days
- [ ] D) 64 days
- [ ] E) 96 days

---

74 On a map with scale 1:20000, two villages near Leeds are 6.9 cm apart. What is the real distance between them, in kilometres?

- [ ] A) 1.38 km
- [ ] B) 138000 km
- [ ] C) 34.5 km
- [ ] D) 0.138 km
- [ ] E) 138 km

---

75 The ratio of fiction books to non-fiction books is 7:10. There are 50 non-fiction books. What is the difference between the number of fiction books and the number of non-fiction books?

- [ ] A) 350
- [ ] B) 850
- [ ] C) 85
- [ ] D) 135
- [ ] E) 15

---

76 Zainab and Freddie share 88 marbles in the ratio 9:2. How many does the person with the largest share get?

- [ ] A) 72
- [ ] B) 16
- [ ] C) 64
- [ ] D) 80
- [ ] E) 396

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77 A car drives 120 km at 60 km/h, then 30 km at 60 km/h. What is its average speed for the whole journey, in km/h?

- [ ] A) 62.0 km/h
- [ ] B) 56.0 km/h
- [ ] C) 75.0 km/h
- [ ] D) 60 km/h
- [ ] E) 2.5 km/h

---

78 The lentils comes in five sizes. Which size is the best value for money?

- [ ] A) 300 g for £1.93
- [ ] B) 1000 g for £6.48
- [ ] C) 400 g for £2.40
- [ ] D) 800 g for £5.23
- [ ] E) 750 g for £4.86

---

79 A recipe for 3 people uses 6 g of sugar. How many grams of sugar are needed for 5 people?

- [ ] A) 30 g
- [ ] B) 10 g
- [ ] C) 4 g
- [ ] D) 8 g
- [ ] E) 2 g

---

80 On a map with scale 1:25000, two villages near Leeds are 3.3 cm apart. What is the real distance between them, in kilometres?

- [ ] A) 13.2 km
- [ ] B) 82.5 km
- [ ] C) 0.0825 km
- [ ] D) 8.25 km
- [ ] E) 0.825 km

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81 The ratio of flour to butter is 7:2. There are 20 g of butter. What is the total amount, in g?

- [ ] A) 140
- [ ] B) 10
- [ ] C) 90
- [ ] D) 25
- [ ] E) 110

---

82 Eleni and Amira share 182 stickers in the ratio 5:9. How many does the person with the smallest share get?

- [ ] A) 52
- [ ] B) 65
- [ ] C) 13
- [ ] D) 117
- [ ] E) 78

---

83 A delivery van travels 60 km in 2 h. What is its average speed?

- [ ] A) 58 km/h
- [ ] B) 120 km/h
- [ ] C) 62 km/h
- [ ] D) 30 km/h
- [ ] E) 0.5 km/h

---

84 The coffee comes in five sizes. Which size is the best value for money?

- [ ] A) 300 g for £1.26
- [ ] B) 250 g for £1.12
- [ ] C) 1000 g for £4.41
- [ ] D) 400 g for £1.78
- [ ] E) 500 g for £2.27

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85 A recipe for 8 people uses 800 g of sugar. How many grams of sugar are needed for 19 people?

- [ ] A) 811 g
- [ ] B) 1900 g
- [ ] C) 11 g
- [ ] D) 15200 g
- [ ] E) 100 g

---

86 On a map with scale 1:20000, two villages near Durham are 3.8 cm apart. What is the real distance between them, in kilometres?

- [ ] A) 19 km
- [ ] B) 7.6 km
- [ ] C) 76 km
- [ ] D) 0.076 km
- [ ] E) 0.76 km

---

87 The ratio of cats to dogs is 4:9. There are 108 dogs. How many cats are there?

- [ ] A) 264
- [ ] B) 243
- [ ] C) 48
- [ ] D) 1404
- [ ] E) 113

---

88 Archie and Callum share £20 in the ratio 3:7. How much is the smallest share?

- [ ] A) £6
- [ ] B) £8
- [ ] C) £30
- [ ] D) £14
- [ ] E) £4

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89 A lorry travels at an average speed of 15 km/h for 1 h 15 min. How far does it travel?

- [ ] A) 5.00 km
- [ ] B) 90 km
- [ ] C) 0.2 km
- [ ] D) 18.75 km
- [ ] E) 1125 km

---

90 The cheese comes in five sizes. Which size is the best value for money?

- [ ] A) 750 g for £4.41
- [ ] B) 800 g for £4.70
- [ ] C) 500 g for £2.80
- [ ] D) 300 g for £1.75
- [ ] E) 1000 g for £5.82

---

91 5 gardeners take 72 days to finish a job, all working at the same rate. How many days would 6 gardeners take?

- [ ] A) 360 days
- [ ] B) 60 days
- [ ] C) 1 days
- [ ] D) 73 days
- [ ] E) 71 days

---

92 On a map with scale 1:100000, two villages near Bristol are 7.4 cm apart. What is the real distance between them, in kilometres?

- [ ] A) 740000 km
- [ ] B) 0.74 km
- [ ] C) 74 km
- [ ] D) 740 km
- [ ] E) 7.4 km

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93 The ratio of fiction books to non-fiction books is 1:8. There are 96 non-fiction books. What is the difference between the number of fiction books and the number of non-fiction books?

- [ ] A) 84
- [ ] B) 95
- [ ] C) 103
- [ ] D) 768
- [ ] E) 864

---

94 A runner travels 30 km in 2 h. What is its average speed?

- [ ] A) 28 km/h
- [ ] B) 15 km/h
- [ ] C) 60 km/h
- [ ] D) 0.25 km/h
- [ ] E) 32 km/h

---

95 The paint comes in five sizes. Which size is the best value for money?

- [ ] A) 330 ml for £1.90
- [ ] B) 1500 ml for £8.10
- [ ] C) 750 ml for £4.31
- [ ] D) 1000 ml for £5.65
- [ ] E) 400 ml for £2

---

96 A recipe for 3 people uses 150 g of flour. How many grams of flour are needed for 21 people?

- [ ] A) 50 g
- [ ] B) 168 g
- [ ] C) 1050 g
- [ ] D) 450 g
- [ ] E) 18 g

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97 A walk near Oxford is 5.5 km long. How long is it on a map with scale 1:10000, in centimetres?

- [ ] A) 55000 cm
- [ ] B) 5.5 cm
- [ ] C) 0.55 cm
- [ ] D) 55 cm
- [ ] E) 5500 cm

---

98 The ratio of boys to girls is 8:11. There are 121 girls. How many pupils are there altogether?

- [ ] A) 209
- [ ] B) 11
- [ ] C) 330
- [ ] D) 2299
- [ ] E) 129

---

99 Jack and Fergus share £140 in the ratio 3:7. What is the difference between the largest and smallest shares?

- [ ] A) £14
- [ ] B) £42
- [ ] C) £56
- [ ] D) £280
- [ ] E) £140

---

100 The paint comes in five sizes. Which size is the best value for money?

- [ ] A) 1500 ml for £8.67
- [ ] B) 1000 ml for £5.51
- [ ] C) 250 ml for £1.38
- [ ] D) 750 ml for £3.98
- [ ] E) 400 ml for £2.29

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101 A recipe for 4 people uses 16 g of flour. How many grams of flour are needed for 18 people?

- [ ] A) 30 g
- [ ] B) 72 g
- [ ] C) 14 g
- [ ] D) 288 g
- [ ] E) 4 g

---

102 On a map with scale 1:100000, two villages near Bristol are 11.6 cm apart. What is the real distance between them, in kilometres?

- [ ] A) 11.6 km
- [ ] B) 1160 km
- [ ] C) 116 km
- [ ] D) 1.16 km
- [ ] E) 1160000 km

---

103 The ratio of flour to butter is 1:5. What percentage of the total is flour?

- [ ] A) 50/3%
- [ ] B) 25/3%
- [ ] C) 0.1%
- [ ] D) 250/3%
- [ ] E) 20%

---

104 Freddie and Archie share 33 sweets in the ratio 3:8. How many does the person with the largest share get?

- [ ] A) 21
- [ ] B) 9
- [ ] C) 3
- [ ] D) 132
- [ ] E) 24

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105 £90 is shared between Priya, Kwame and Zara in the ratio 2:3:4.

(a) Find the value of one share. **(1)**

.....

(b) Work out how much money each person receives. **(3)**

.....

---

106 A canoeist travels 180 km in 4 h. What is its average speed?

- ☐ A) 184 km/h
- ☐ B) 45 km/h
- ☐ C) 0.75 km/h
- ☐ D) 720 km/h
- ☐ E) 0.02 km/h

---

107 The rice comes in five sizes. Which size is the best value for money?

- ☐ A) 600 g for £2.55
- ☐ B) 250 g for £1.05
- ☐ C) 400 g for £1.68
- ☐ D) 300 g for £1.17
- ☐ E) 500 g for £2.16

---

108 8 painters take 78 days to finish a job, all working at the same rate. How many days would 26 painters take?

- ☐ A) 253.5 days
- ☐ B) 2028 days
- ☐ C) 24 days
- ☐ D) 18 days
- ☐ E) 60 days

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109 A walk near Oxford is 5.7 km long. How long is it on a map with scale 1:25000, in centimetres?

- [ ] A) 228 cm
- [ ] B) 1.425 cm
- [ ] C) 0.228 cm
- [ ] D) 2.28 cm
- [ ] E) 22.8 cm

---

110 The ratio of fiction books to non-fiction books is 5:7. There are 63 non-fiction books. How many books are there altogether?

- [ ] A) 68
- [ ] B) 171
- [ ] C) 108
- [ ] D) 65
- [ ] E) 58

---

111 Nia and Rhys share 135 sweets in the ratio 2:7. How many does the person with the largest share get?

- [ ] A) 105
- [ ] B) 90
- [ ] C) 30
- [ ] D) 472.5
- [ ] E) 120

---

112 A tractor travels 60 km at an average speed of 40 km/h. How long does the journey take?

- [ ] A) 1 h 50 min
- [ ] B) 1 h 20 min
- [ ] C) 1 h 40 min
- [ ] D) 1 h 30 min
- [ ] E) 0.67 h

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113 The sugar comes in five sizes. Which size is the best value for money?

- ☐ A) 1000 g for £4.30
- ☐ B) 750 g for £3.08
- ☐ C) 800 g for £3.41
- ☐ D) 500 g for £2.15
- ☐ E) 400 g for £1.67

---

114 2 painters take 56 days to finish a job, all working at the same rate. How many days would 16 painters take?

- ☐ A) 7 days
- ☐ B) 896 days
- ☐ C) 42 days
- ☐ D) 448 days
- ☐ E) 28 days

---

115 A map has a scale of 1:25000.

(a) The distance between two villages on the map is 6 cm. Work out the real distance between the villages, in km. **(3)**

.....

(b) Two towns are 8 km apart in real life. Work out the distance between them on the map, in cm. **(2)**

.....

---

116 The ratio of boys to girls is 5:7. What percentage of the total is boys?

- ☐ A) 0.5%
- ☐ B) 500/7%
- ☐ C) 125/3%
- ☐ D) 25/3%
- ☐ E) 125/6%

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117 Callum and Fergus share 105 marbles in the ratio 5:2. How many does the person with the largest share get?

- [ ] A) 90
- [ ] B) 60
- [ ] C) 262.5
- [ ] D) 30
- [ ] E) 75

---

118 A tractor travels 120 km in 5 h. What is its average speed?

- [ ] A) 600 km/h
- [ ] B) 125 km/h
- [ ] C) 0.04 km/h
- [ ] D) 24 km/h
- [ ] E) 0.4 km/h

---

119 The shampoo comes in five sizes. Which size is the best value for money?

- [ ] A) 330 ml for £1.94
- [ ] B) 1500 ml for £8.74
- [ ] C) 400 ml for £2.20
- [ ] D) 250 ml for £1.48
- [ ] E) 500 ml for £2.89

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120 12 builders take 24 days to finish a job, all working at the same rate. How many days would 9 builders take?

- [ ] A) 288 days
- [ ] B) 32 days
- [ ] C) 21 days
- [ ] D) 2 days
- [ ] E) 18 days

---

121 A walk near Inverness is 2.1 km long. How long is it on a map with scale 1:25000, in centimetres?

- [ ] A) 52500 cm
- [ ] B) 0.525 cm
- [ ] C) 840 cm
- [ ] D) 8.4 cm
- [ ] E) 0.84 cm

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Mark scheme · 2.3 Ratio and Proportion: 2-hour Pack

Question 1

A cao (26); one part = 2 **B1**

Answer: A) 26

Question 2

E cao (£18); 60 ÷ 10 = 6 per part **B1**

Answer: E) £18

Question 3

A cao (50 km/h); speed = distance / time; change minutes to hours **B1**

Answer: A) 50 km/h

Question 4

B cao (750 ml for £4.50); compare the price per unit for each size **B1**

Answer: B) 750 ml for £4.50

Question 5

C cao (72 g); find the amount for one person, then multiply **B1**

Answer: C) 72 g

Question 6

D cao (0.73 km); multiply by the scale, then change cm to km **B1**

Answer: D) 0.73 km

Question 7

E cao (600/13%); total parts = 6 + 7 = 13 **B1**

Answer: E) 600/13%

Question 8

D cao (60); 200 ÷ 10 = 20 per part **B1**

Answer: D) 60

Question 9

E cao (36 km/h); speed = distance / time; change minutes to hours **B1**

Answer: E) 36 km/h

Question 10

C cao (330 ml for £1.42); compare the price per unit for each size **B1**

Answer: C) 330 ml for £1.42

Question 11

B cao (9 days); total work stays the same: workers x days **B1**

Answer: B) 9 days

Question 12

A cao (0.8 km); multiply by the scale, then change cm to km **B1**

Answer: A) 0.8 km

Question 13

E cao (170); one part = 10 **B1**

Answer: E) 170

Question 14

C cao (10 km); speed = distance / time; change minutes to hours **B1**

Answer: C) 10 km

Question 15

D cao (330 ml for £1.48); compare the price per unit for each size **B1**

Answer: D) 330 ml for £1.48

Question 16

B cao (30 days); total work stays the same: workers x days **B1**

Answer: B) 30 days

Question 17

B cao (7.8 km); multiply by the scale, then change cm to km **B1**

Answer: B) 7.8 km

Question 18

B cao (1000 ml for £5.30); compare the price per unit for each size **B1**

Answer: B) 1000 ml for £5.30

Question 19

C cao (150/7%); total parts = 3 + 11 = 14 **B1**

Answer: C) 150/7%

Question 20

D cao (153); 238 ÷ 14 = 17 per part **B1**

Answer: D) 153

Question 21

A cao (56.25 km); speed = distance / time; change minutes to hours **B1**

Answer: A) 56.25 km

Question 22

E cao (250 g for £1.20); compare the price per unit for each size **B1**

Answer: E) 250 g for £1.20

Question 23

A cao (300 g); find the amount for one person, then multiply **B1**

Answer: A) 300 g

Question 24

B cao (15 cm); change km to cm, then divide by the scale **B1**

Answer: B) 15 cm

Question 25

E cao (16); one part = 8 **B1**

Answer: E) 16

Question 26

D cao (52); 117 ÷ 9 = 13 per part **B1**

Answer: D) 52

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Question 27

C cao (48 km/h); speed = distance / time; change minutes to hours **B1**

Answer: C) 48 km/h

Question 28

B cao (500 ml for £1.60); compare the price per unit for each size **B1**

Answer: B) 500 ml for £1.60

Question 29

C cao (90 days); total work stays the same: workers x days **B1**

Answer: C) 90 days

Question 30

D cao (3.8 km); multiply by the scale, then change cm to km **B1**

Answer: D) 3.8 km

Question 31

A cao (25); one part = 5 **B1**

Answer: A) 25

Question 32

E cao (102); 357 ÷ 21 = 17 per part **B1**

Answer: E) 102

Question 33

A cao (1 h 12 min); speed = distance / time; change minutes to hours **B1**

Answer: A) 1 h 12 min

Question 34

B cao (500 g for £2.30); compare the price per unit for each size **B1**

Answer: B) 500 g for £2.30

Question 35

C cao (126 g); find the amount for one person, then multiply **B1**

Answer: C) 126 g

Question 36

D cao (85); one part = 5 **B1**

Answer: D) 85

Question 37

E cao (56); 119 ÷ 17 = 7 per part **B1**

Answer: E) 56

Question 38

E cao (8.6 cm); change km to cm, then divide by the scale **B1**

Answer: E) 8.6 cm

Question 39

A cao (2 h 30 min); speed = distance / time; change minutes to hours **B1**

Answer: A) 2 h 30 min

Question 40

C cao (400 g for £2.16); compare the price per unit for each size **B1**

Answer: C) 400 g for £2.16

Question 41

B cao (81 g); find the amount for one person, then multiply **B1**

Answer: B) 81 g

Question 42

D cao (29.6 cm); change km to cm, then divide by the scale **B1**

Answer: D) 29.6 cm

Question 43

E cao (£56); 104 ÷ 13 = 8 per part **B1**

Answer: E) £56

Question 44

C cao (15 km); speed = distance / time; change minutes to hours **B1**

Answer: C) 15 km

Question 45

A cao (500 g for £2.20); compare the price per unit for each size **B1**

Answer: A) 500 g for £2.20

Question 46

B cao (6 days); total work stays the same: workers x days **B1**

Answer: B) 6 days

Question 47

D cao (0.05 km); multiply by the scale, then change cm to km **B1**

Answer: D) 0.05 km

Question 48

E cao (36); one part = 12 **B1**

Answer: E) 36

Question 49

B cao (21); one part = 3 **B1**

Answer: B) 21

Question 50

C cao (21); 36 ÷ 12 = 3 per part **B1**

Answer: C) 21

Question 51

E cao (45 km); speed = distance / time; change minutes to hours **B1**

Answer: E) 45 km

Question 52

D cao (500 g for £2.20); compare the price per unit for each size **B1**

Answer: D) 500 g for £2.20

Question 53

C cao (30 g); find the amount for one person, then multiply **B1**

Answer: C) 30 g

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Question 54

D cao (40); 64 ÷ 8 = 8 per part **B1**

Answer: D) 40

Question 55

B cao (12 km); speed = distance / time; change minutes to hours **B1**

Answer: B) 12 km

Question 56

A cao (750 g for £3.75); compare the price per unit for each size **B1**

Answer: A) 750 g for £3.75

Question 57

C cao (80 g); find the amount for one person, then multiply **B1**

Answer: C) 80 g

Question 58

E cao (182); one part = 14 **B1**

Answer: E) 182

Question 59

D cao (9); 12 ÷ 4 = 3 per part **B1**

Answer: D) 9

Question 60

A cao (12 km/h); speed = distance / time; change minutes to hours **B1**

Answer: A) 12 km/h

Question 61

C cao (1500 ml for £6.90); compare the price per unit for each size **B1**

Answer: C) 1500 ml for £6.90

Question 62

A cao (60 days); total work stays the same: workers x days **B1**

Answer: A) 60 days

Question 63

D cao (0.68 km); multiply by the scale, then change cm to km **B1**

Answer: D) 0.68 km

Question 64

B cao (35); one part = 7 **B1**

Answer: B) 35

Question 65

E cao (24); 88 ÷ 11 = 8 per part **B1**

Answer: E) 24

Question 66

B cao (1 h 30 min); speed = distance / time; change minutes to hours **B1**

Answer: B) 1 h 30 min

Question 67

D cao (750 ml for £4.12); compare the price per unit for each size **B1**

Answer: D) 750 ml for £4.12

Question 68

C cao (128 g); find the amount for one person, then multiply **B1**

Answer: C) 128 g

Question 69

A cao (0.14 km); multiply by the scale, then change cm to km **B1**

Answer: A) 0.14 km

Question 70

E cao (28); one part = 14 **B1**

Answer: E) 28

Question 71

E cao (42); 78 ÷ 13 = 6 per part **B1**

Answer: E) 42

Question 72

B cao (36 km/h); speed = distance / time; change minutes to hours **B1**

Answer: B) 36 km/h

Question 73

C cao (4 days); total work stays the same: workers x days **B1**

Answer: C) 4 days

Question 74

A cao (1.38 km); multiply by the scale, then change cm to km **B1**

Answer: A) 1.38 km

Question 75

E cao (15); one part = 5 **B1**

Answer: E) 15

Question 76

A cao (72); 88 ÷ 11 = 8 per part **B1**

Answer: A) 72

Question 77

D cao (60 km/h); speed = distance / time; change minutes to hours **B1**

Answer: D) 60 km/h

Question 78

C cao (400 g for £2.40); compare the price per unit for each size **B1**

Answer: C) 400 g for £2.40

Question 79

B cao (10 g); find the amount for one person, then multiply **B1**

Answer: B) 10 g

Question 80

E cao (0.825 km); multiply by the scale, then change cm to km **B1**

Answer: E) 0.825 km

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Question 81

C cao (90); one part = 10 **B1**

Answer: C) 90

Question 82

B cao (65); 182 ÷ 14 = 13 per part **B1**

Answer: B) 65

Question 83

D cao (30 km/h); speed = distance / time; change minutes to hours **B1**

Answer: D) 30 km/h

Question 84

A cao (300 g for £1.26); compare the price per unit for each size **B1**

Answer: A) 300 g for £1.26

Question 85

B cao (1900 g); find the amount for one person, then multiply **B1**

Answer: B) 1900 g

Question 86

E cao (0.76 km); multiply by the scale, then change cm to km **B1**

Answer: E) 0.76 km

Question 87

C cao (48); one part = 12 **B1**

Answer: C) 48

Question 88

A cao (£6); 20 ÷ 10 = 2 per part **B1**

Answer: A) £6

Question 89

D cao (18.75 km); speed = distance / time; change minutes to hours **B1**

Answer: D) 18.75 km

Question 90

C cao (500 g for £2.80); compare the price per unit for each size **B1**

Answer: C) 500 g for £2.80

Question 91

B cao (60 days); total work stays the same: workers x days **B1**

Answer: B) 60 days

Question 92

E cao (7.4 km); multiply by the scale, then change cm to km **B1**

Answer: E) 7.4 km

Question 93

A cao (84); one part = 12 **B1**

Answer: A) 84

Question 94

B cao (15 km/h); speed = distance / time; change minutes to hours **B1**

Answer: B) 15 km/h

Question 95

E cao (400 ml for £2); compare the price per unit for each size **B1**

Answer: E) 400 ml for £2

Question 96

C cao (1050 g); find the amount for one person, then multiply **B1**

Answer: C) 1050 g

Question 97

D cao (55 cm); change km to cm, then divide by the scale **B1**

Answer: D) 55 cm

Question 98

A cao (209); one part = 11 **B1**

Answer: A) 209

Question 99

C cao (£56); 140 ÷ 10 = 14 per part **B1**

Answer: C) £56

Question 100

D cao (750 ml for £3.98); compare the price per unit for each size **B1**

Answer: D) 750 ml for £3.98

Question 101

B cao (72 g); find the amount for one person, then multiply **B1**

Answer: B) 72 g

Question 102

A cao (11.6 km); multiply by the scale, then change cm to km **B1**

Answer: A) 11.6 km

Question 103

A cao (50/3%); total parts = 1 + 5 = 6 **B1**

Answer: A) 50/3%

Question 104

E cao (24); 33 ÷ 11 = 3 per part **B1**

Answer: E) 24

Question 105

(a) 10 cao **B1**

(a) Answer: £10

(b) correct method, e.g. 2 x 10, 3 x 10, 4 x 10, ft from part a **M1**

(b) at least two of Priya 20, Kwame 30, Zara 40 correct **A1**

(b) all three of Priya 20, Kwame 30, Zara 40 correct cao **A1**

(b) Answer: Priya £20, Kwame £30, Zara £40

Question 106

B cao (45 km/h); speed = distance / time; change minutes to hours **B1**

Answer: B) 45 km/h

Question 107

D cao (300 g for £1.17); compare the price per unit for each size **B1**

Answer: D) 300 g for £1.17

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Question 108

C cao (24 days); total work stays the same: workers x days **B1**

Answer: C) 24 days

Question 109

E cao (22.8 cm); change km to cm, then divide by the scale **B1**

Answer: E) 22.8 cm

Question 110

C cao (108); one part = 9 **B1**

Answer: C) 108

Question 111

A cao (105); 135 ÷ 9 = 15 per part **B1**

Answer: A) 105

Question 112

D cao (1 h 30 min); speed = distance / time; change minutes to hours **B1**

Answer: D) 1 h 30 min

Question 113

B cao (750 g for £3.08); compare the price per unit for each size **B1**

Answer: B) 750 g for £3.08

Question 114

A cao (7 days); total work stays the same: workers x days **B1**

Answer: A) 7 days

Question 115

(a) 6 x 25000 = 150000 (cm) oe **M1**

(a) convert cm to km by dividing by 100000, dependent on previous method **M1**

(a) 1.5 km cao **A1**

(a) Answer: 1.5 km

(b) 8 km = 800000 cm, then 800000/25000 oe **M1**

(b) 32 cm cao **A1**

(b) Answer: 32 cm

Question 116

C cao (125/3%); total parts = 5 + 7 = 12 **B1**

Answer: C) 125/3%

Question 117

E cao (75); 105 ÷ 7 = 15 per part **B1**

Answer: E) 75

Question 118

D cao (24 km/h); speed = distance / time; change minutes to hours **B1**

Answer: D) 24 km/h

Question 119

C cao (400 ml for £2.20); compare the price per unit for each size **B1**

Answer: C) 400 ml for £2.20

Question 120

B cao (32 days); total work stays the same: workers x days **B1**

Answer: B) 32 days

Question 121

D cao (8.4 cm); change km to cm, then divide by the scale **B1**

Answer: D) 8.4 cm

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