



EP.M103 Ratio Sharing when the Difference is Given

GL ASSESSMENT GL-11PLUS-MATHS · Calculators not allowed · about 45 minutes

Total Marks

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Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1** Two children share a prize in the ratio 3:5. The larger share is £8 more than the smaller share. What is the smaller share?

- ☐ A) £8
- ☐ B) £12
- ☐ C) £16
- ☐ D) £20
- ☐ E) £24

(Total for Question 1 is 1 mark)

- 2** Two friends share a box of sweets in the ratio 7:3. The difference between their shares is 16 sweets. How many sweets does the larger friend receive?

- ☐ A) 16
- ☐ B) 21
- ☐ C) 28
- ☐ D) 32
- ☐ E) 40

(Total for Question 2 is 1 mark)

- 3** Two pupils share stickers in the ratio 2:5. The larger pupil has 21 more stickers than the smaller. How many stickers does the smaller pupil have?

- ☐ A) 7
- ☐ B) 9
- ☐ C) 14
- ☐ D) 28
- ☐ E) 35

(Total for Question 3 is 1 mark)

- 4 Two neighbours split vegetable plants in the ratio 4:9. The neighbour with the larger share has 15 more plants than the other. How many plants did they have altogether?

- ☐ A) 21
- ☐ B) 27
- ☐ C) 36
- ☐ D) 39
- ☐ E) 66

(Total for Question 4 is 1 mark)

- 5 Two runners share prize money in the ratio 5:8. The larger share is £12 more than the smaller. How much does the larger runner receive?

- ☐ A) £16
- ☐ B) £20
- ☐ C) £24
- ☐ D) £32
- ☐ E) £48

(Total for Question 5 is 1 mark)

- 6 A teacher divides reward points between two teams in the ratio 3:7. The larger team has 20 more points than the smaller. What is the total number of points?

- ☐ A) 20
- ☐ B) 35
- ☐ C) 40
- ☐ D) 50
- ☐ E) 70

(Total for Question 6 is 1 mark)

- 7 Two friends share a bag of pens in the ratio 1:4. The larger share is 9 pens more than the smaller. How many pens does the smaller friend get?

- ☐ A) 1
- ☐ B) 3
- ☐ C) 4
- ☐ D) 6
- ☐ E) 9

(Total for Question 7 is 1 mark)

- 8** The amounts Albert and Ben receive are in the ratio 2:3. Albert receives 5 pounds less than Ben. How many pounds does Albert receive?

- ☐ A) £5
- ☐ B) £7
- ☐ C) £10
- ☐ D) £15
- ☐ E) £20

(Total for Question 8 is 1 mark)

- 9** Three children share a birthday cake in the ratio 2:3:5. The largest piece is 30 grams more than the smallest. What is the total mass of the cake in grams?

- ☐ A) 50 g
- ☐ B) 100 g
- ☐ C) 150 g
- ☐ D) 200 g
- ☐ E) 1000 g

(Total for Question 9 is 1 mark)

- 10** Three projects receive funds in the ratio 1:2:4. The middle project receives 6 pounds more than the smallest. How many pounds does the smallest project receive?

- ☐ A) £2
- ☐ B) £3
- ☐ C) £4
- ☐ D) £6
- ☐ E) £12

(Total for Question 10 is 1 mark)

- 11** Three siblings share savings in the ratio 3:4:7. The largest sibling gets £30 more than the middle sibling. How much does the smallest sibling receive?

- ☐ A) £10
- ☐ B) £20
- ☐ C) £30
- ☐ D) £40
- ☐ E) £60

(Total for Question 11 is 1 mark)

- 12** Two children split apples in the ratio 4:5. The larger child has 9 more apples than the smaller. How many apples are there in total?

- ☐ A) 18
- ☐ B) 36
- ☐ C) 45
- ☐ D) 72
- ☐ E) 81

(Total for Question 12 is 1 mark)

- 13** Sam and Priya share sweets in the ratio 7:2. Sam has 35 more sweets than Priya. How many sweets does Sam have?

- ☐ A) 35
- ☐ B) 42
- ☐ C) 49
- ☐ D) 70
- ☐ E) 105

(Total for Question 13 is 1 mark)

- 14** A group divides a donation in the ratio 2:9. The larger share is £28 more than the smaller. What is the smaller share?

- ☐ A) £4
- ☐ B) £8
- ☐ C) £16
- ☐ D) £18
- ☐ E) £36

(Total for Question 14 is 1 mark)

- 15** Two colleagues share commission in the ratio 6:11. The larger gets £25 more than the smaller. How much does the larger colleague receive?

- ☐ A) £25
- ☐ B) £33
- ☐ C) £44
- ☐ D) £55
- ☐ E) £66

(Total for Question 15 is 1 mark)

16 A charity divides a sum in the ratio 3:8. The difference between the shares is £25. What is the total amount given out?

- ☐ A) £25
- ☐ B) £55
- ☐ C) £65
- ☐ D) £110
- ☐ E) £275

(Total for Question 16 is 1 mark)

17 Two sisters share an inheritance in the ratio 5:7. The elder sister receives £4,200 more than the younger. Work out the smaller (younger) sister's share.

(Total for Question 17 is 2 marks)

18 A charity divides money between three projects A: B: C = 3: 4: 5. Project C receives £80 more than project A. Work out how much Project B receives.

(Total for Question 18 is 3 marks)

19 A cake is cut into four pieces in the ratio 1:2:3:4. The smallest piece is 150 grams less than the next smallest piece. Find the total mass of the cake in grams.

(Total for Question 19 is 4 marks)

20 Four people share prize money in the ratio 5:6:7:8. The person with 8 parts received £24 more than the person with 5 parts. Work out how much each person received.

(Total for Question 20 is 5 marks)

Mark scheme · EP.M103 Ratio Sharing when the Difference is Given

Question 1

- **B1** correct option B (£12) cao
- **Answer: B) £12** (smaller share = £12). The parts differ by 2, so 1 part = $8/2 = 4$; smaller = $3 \times 4 = 12$. | **Working check:** distractors from common slips: A) assumes 1 part = 8, C) adds incorrectly, D/E) use wrong multiplier.

Question 2

- **B1** correct option C (28) cao
- **Answer: C) 28 sweets.** One part = $16/4 = 4$; larger = $7 \times 4 = 28$. | **Working check:** A) confuses difference with larger share; B/D) wrong division; E) uses total or sum error.

Question 3

- **B1** correct option C (14) cao
- **Answer: C) 14 stickers.** Difference = 3 parts so 1 part = $21/3 = 7$; smaller = $2 \times 7 = 14$. | **Working check:** A/B) divide difference incorrectly; D/E) multiply wrong part.

Question 4

- **B1** correct option D (39) cao
- **Answer: D) 39 plants.** Difference is 5 parts so 1 part = $15/5 = 3$; shares 12 and 27; total 39. | **Working check:** A/B/C) mix up parts or take one share only; E) total if 15 was 1 part misapplied.

Question 5

- **B1** correct option D (£32) cao
- **Answer: D) £32.** Difference = 3 parts so 1 part = $12/3 = 4$; larger = $8 \times 4 = 32$. | **Working check:** A/B/C) under-multiplying; E) uses sum of parts incorrectly.

Question 6

- **B1** correct option D (50) cao
- **Answer: D) 50 points.** Difference = 4 parts so 1 part = $20/4 = 5$; shares 15 and 35; total 50. | **Working check:** A/B/C) confusion between one share and difference; E) double counting.

Question 7

- **B1** correct option B (3) cao
- **Answer: B) 3 pens.** Difference = 3 parts so 1 part = $9/3 = 3$; smaller = $1 \times 3 = 3$. | **Working check:** A/C/D/E) common misdivisions or reading larger as 4 parts of 9.

Question 8

- **B1** correct option C (£10) cao
- **Answer: C) £10.** Difference = 1 part so 1 part = 5; Albert = $2 \times 5 = 10$. | **Working check:** A/B) think 5 is total not 1 part; D/E) scale errors.

Question 9

- **B1** correct option B (100 g) cao
- **Answer: B) 100 g.** Difference largest-smallest = 3 parts so 1 part = $30/3 = 10$; total parts $2+3+5 = 10$ so total mass = $10 \times 10 = 100$ g. | **Working check:** A/C/D) miscalculate parts; E) huge error.

Question 10

- **B1** correct option D (£6) cao
- **Answer: D) £6.** Middle - smallest = 1 part so 1 part = 6; smallest = $1 \times 6 = 6$. | **Working check:** A/B/C) underestimate; E) total confusion.

Question 11

- **B1** correct option C (£30) cao
- **Answer: C) £30.** Largest - middle = $7 - 4 = 3$ parts, so 1 part = $30/3 = 10$; smallest = $3 \times 10 = 30$. | Working check: distractors come from misidentifying which parts to use or using the wrong difference.

Question 12

- **B1** correct option E (81) cao
- **Answer: E) 81 apples.** Difference = 1 part so 1 part = 9; shares $4 \times 9 = 36$ and $5 \times 9 = 45$; total 81. | Working check: A/B/C/D) common partial sums or one share only.

Question 13

- **B1** correct option C (49) cao
- **Answer: C) 49 sweets.** Difference = 5 parts so 1 part = $35/5 = 7$; Sam = $7 \times 7 = 49$. | Working check: A/B) misread difference; D/E) multiply total or all parts.

Question 14

- **B1** correct option B (£8) cao
- **Answer: B) £8.** Difference = $9 - 2 = 7$ parts, so 1 part = $28/7 = 4$; smaller = $2 \times 4 = 8$. | Working check: distractors come from using the larger share or doubling the part value.

Question 15

- **B1** correct option D (£55) cao
- **Answer: D) £55.** Difference = 5 parts so 1 part = $25/5 = 5$; larger = $11 \times 5 = 55$. | Working check: A/B/C/E) common multiplication or division slips.

Question 16

- **B1** correct option C (£55) cao
- **Answer: C) £55.** Difference = 5 parts so 1 part = $25/5 = 5$; shares 15 and 40; total 55. | Working check: B/D/E) confusion with one share or mis-summing.

Question 17

- **M1** find 1 part = $4200/2 = 2100$
- **A1** smaller share = $5 \times 2100 = 10,500$ cao
- **Answer: £10,500 (younger sister).** Working check: difference = $7-5 = 2$ parts so 1 part = $4200/2 = 2100$; younger = $5 \times 2100 = £10,500$.

Question 18

- **M1** recognise difference C-A = 2 parts and find 1 part = $80/2 = 40$
- **M1** calculate B = $4 \times 40 = 160$
- **A1** 160 cao
- **Answer: £160.** Working check: C-A = $5-3 = 2$ parts so 1 part = $80/2 = 40$; B = $4 \times 40 = 160$.

Question 19

- **M1** identify difference between 2nd smallest and smallest = 1 part
- **M1** find 1 part = 150 g
- **M1** calculate total parts = $1+2+3+4 = 10$ and method to find total mass
- **A1** total = $150 \times 10 = 1500$ g cao
- **Answer: 1500 g.** Working check: 2nd smallest - smallest = $2-1 = 1$ part = 150 g. Total parts 10 so $150 \times 10 = 1500$ g.

Question 20

- **M1** recognise difference $8-5 = 3$ parts
- **M1** find 1 part = $24/3 = 8$
- **M1** calculate at least two individual amounts using 1 part
- **M1** calculate remaining amounts correctly
- **A1** full correct set: 40, 48, 56, 64 cao
- **Answer: They received £40, £48, £56 and £64 respectively. Working check: $8-5 = 3$ parts so 1 part = $24/3 = 8$. Then $5 \times 8 = 40$, $6 \times 8 = 48$, $7 \times 8 = 56$, $8 \times 8 = 64$.**