

# Educational Worksheet

## Answer Keys - Grade 7 Mathematics Worksheets

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### Answer Key: Add and Subtract Decimals

#### Section A: Basic Addition and Subtraction

1.  $23.4 + 15.7 = 39.1$
2.  $67.89 + 23.4 = 91.29$
3.  $156.7 - 89.3 = 67.4$
4.  $45.67 - 28.9 = 16.77$
5.  $123.456 + 67.89 = 191.346$
6.  $234.5 - 167.89 = 66.61$
7.  $89.7 + 123.45 + 67.8 = 280.95$
8.  $456.78 - 289.456 = 167.324$
9.  $12.345 + 67.8 + 123.45 = 203.595$
10.  $789.4 - 456.789 = 332.611$

#### Section B: Mixed Operations

11.  $45.6 + 23.78 - 12.9 = 56.48$
12.  $123.4 - 67.89 + 45.6 = 101.11$
13.  $234.56 + 78.9 - 156.78 = 156.68$
14.  $67.8 - 23.456 + 89.7 = 134.044$
15.  $345.67 + 123.4 - 234.56 + 67.8 = 302.31$
16.  $456.7 - 234.89 + 123.45 - 67.8 = 277.46$
17.  $789.45 + 123.6 - 456.78 + 234.5 = 690.77$
18.  $234.5 - 123.67 + 456.8 - 234.56 = 333.07$

#### Section C: Word Problems

19.  $\pounds 12.45 + \pounds 3.67 + \pounds 5.89 = \pounds 22.01$
20.  $\pounds 145.67 + \pounds 23.45 - \pounds 67.89 = \pounds 101.23$
21.  $2.5 + 1.75 + 0.85 = 4.1 \text{ kg}$
22.  $3.7 + 4.85 + 2.95 = 11.5 \text{ km}$
23.  $\pounds 1,250.50 - \pounds 345.67 - \pounds 234.89 - \pounds 156.75 = \pounds 513.19$
24.  $45.67 + 23.8 - 12.45 = 57.02 \text{ mL}$

#### Section D: Problem Solving Challenges

25.  $23.4 + 8.23 - 12.67 = 18.9$
26. Estimate: **Greater than 100** ( $34 + 29 + 31 + 7 = 101$  approximately)
27.  $2.75 + 3.2 + 2.95 - 1.85 = 7.05 \text{ kg}$
28. **22.1, 25.3** (adding 3.2 each time)
29.  $\pounds 2.45 + \pounds 1.67 + \pounds 3.89 = \pounds 8.01$ . **Yes, he has enough. Change =  $\pounds 0.76$**
30.  $156.7 - 34.85 - 23.9 - 45.67 = 52.28 \text{ cm}$

# Answer Key: Map Scale

## Section A: Understanding Scale

1. 1 cm = **50,000 cm** = **500 m** = **0.5 km**
2. **1:25,000** shows more detail (smaller scale number = more detail)
3. 1 cm : 2 km = **1:200,000**; 1 cm : 500 m = **1:50,000**; 2 cm : 1 km = **1:50,000**

## Section B: Map Distance to Real Distance

4.  $5 \times 20,000 = 100,000 \text{ cm} = 1,000 \text{ m}$
5.  $3.5 \times 50,000 = 175,000 \text{ cm} = 1.75 \text{ km}$
6.  $8 \times 25,000 = 200,000 \text{ cm} = 2,000 \text{ m}$
7.  $2.4 \times 100,000 = 240,000 \text{ cm} = 2.4 \text{ km}$
8.  $12.5 \times 10,000 = 125,000 \text{ cm} = 1,250 \text{ m}$
9.  $6.8 \times 75,000 = 510,000 \text{ cm} = 5.1 \text{ km}$
10.  $4.5 \times 200,000 = 900,000 \text{ cm} = 9 \text{ km}$
11.  $9.2 \times 15,000 = 138,000 \text{ cm} = 1,380 \text{ m}$

## Section C: Real Distance to Map Distance

12.  $1.5 \text{ km} = 150,000 \text{ cm} \div 30,000 = 5 \text{ cm}$
13.  $800 \text{ m} = 80,000 \text{ cm} \div 40,000 = 2 \text{ cm}$
14.  $2.5 \text{ km} = 250,000 \text{ cm} \div 25,000 = 10 \text{ cm}$
15.  $1,200 \text{ m} = 120,000 \text{ cm} \div 60,000 = 2 \text{ cm}$
16.  $3.2 \text{ km} = 320,000 \text{ cm} \div 80,000 = 4 \text{ cm}$
17.  $750 \text{ m} = 75,000 \text{ cm} \div 50,000 = 1.5 \text{ cm}$
18.  $1.75 \text{ km} = 175,000 \text{ cm} \div 35,000 = 5 \text{ cm}$
19.  $900 \text{ m} = 90,000 \text{ cm} \div 45,000 = 2 \text{ cm}$

## Section D: Scale Drawing Problems

20.  $24 \text{ m} = 2,400 \text{ cm} \div 200 = 12 \text{ cm}$
21.  $8 \text{ cm} \times 500 = 4,000 \text{ cm} = 40 \text{ m}$ ;  $6 \text{ cm} \times 500 = 3,000 \text{ cm} = 30 \text{ m}$
22.  $4.8 \text{ m} = 480 \text{ cm} \div 32 = 15 \text{ cm}$
23.  $5.5 \text{ m} \div 100 = 5.5 \text{ cm}$ ;  $4.2 \text{ m} \div 100 = 4.2 \text{ cm}$

## Section E: Real-World Applications

24.  $14 \times 25,000 = 350,000 \text{ cm} = 3.5 \text{ km}$ ; Time =  $3.5 \div 4 = 52 \text{ minutes } 30 \text{ seconds}$
25.  $23 \times 10,000 = 230,000 \text{ cm} = 2.3 \text{ km}$ ; Cost =  $2.3 \times \text{£}50,000 = \text{£}115,000$
26.  $(15 + 8) \times 2,000 = 23 \times 2,000 = 46,000 \text{ cm} = 460 \text{ m}$
27. Real distance =  $6 \times 50,000 = 300,000 \text{ cm}$ ; On Map 2:  $300,000 \div 100,000 = 3 \text{ cm}$
28. Scale 1:5,000:  $150 \text{ m} = 15,000 \text{ cm} \div 5,000 = 3 \text{ cm}$ ;  $80 \text{ m} = 8,000 \text{ cm} \div 5,000 = 1.6 \text{ cm}$  Scale 1:2,000:  $15,000 \div 2,000 = 7.5 \text{ cm}$ ;  $8,000 \div 2,000 = 4 \text{ cm}$

# Answer Key: Ratio and Direct Proportion

## Section A: Simplifying Ratios

1.  $12 : 18 = \mathbf{2 : 3}$
2.  $15 : 25 = \mathbf{3 : 5}$
3.  $24 : 36 : 48 = \mathbf{2 : 3 : 4}$
4.  $20 : 35 = \mathbf{4 : 7}$
5.  $16 : 24 : 32 = \mathbf{2 : 3 : 4}$
6.  $45 : 60 = \mathbf{3 : 4}$
7.  $21 : 28 : 35 = \mathbf{3 : 4 : 5}$
8.  $72 : 108 = \mathbf{2 : 3}$

## Section B: Equivalent Ratios

9.  $3 : 5 = 12 : \mathbf{20}$
10.  $2 : 7 = \mathbf{6} : 21$
11.  $4 : 9 = 20 : \mathbf{45}$
12.  $5 : 8 = \mathbf{20} : 32$
13.  $6 : 11 = 18 : \mathbf{33}$
14.  $7 : 10 = \mathbf{35} : 50$

## Section C: Sharing in Given Ratios

15. Total parts = 8;  $\pounds 240 \div 8 = \pounds 30$ ;  **$\pounds 90 : \pounds 150$**
16. Total parts = 12;  $72 \div 12 = 6$ ;  **$30 : 42$**
17. Total parts = 10;  $150 \div 10 = 15$ ;  **$30 \text{ cm} : 45 \text{ cm} : 75 \text{ cm}$**
18. Total parts = 14;  $\pounds 420 \div 14 = \pounds 30$ ;  **$\pounds 120 : \pounds 90 : \pounds 210$**
19. Total parts = 8;  $96 \div 8 = 12$ ;  **$60 : 36$**
20. Total parts = 14;  $210 \div 14 = 15$ ;  **$30 \text{ min} : 45 \text{ min} : 60 \text{ min} : 75 \text{ min}$**
21. Total parts = 12;  $180 \div 12 = 15$ ;  **$105 \text{ kg} : 75 \text{ kg}$**
22. Total parts = 15;  $\pounds 675 \div 15 = \pounds 45$ ;  **$\pounds 135 : \pounds 180 : \pounds 360$**
23. Total parts = 9;  $144 \div 9 = 16$ ;  **$16 : 48 : 80$**
24. Total parts = 7;  $280 \div 7 = 40$ ;  **$120 \text{ ml} : 160 \text{ ml}$**

## Section D: Direct Proportion

25.  $\pounds 3 \div 5 \times 8 = \mathbf{\pounds 4.80}$
26.  $2.4 \div 12 \times 20 = \mathbf{4 \text{ kg}}$
27.  $6 \times 15 \div 10 = \mathbf{9 \text{ days}}$
28.  $\pounds 18 \div 4 \times 7 = \mathbf{\pounds 31.50}$
29.  $2.7 \div 9 \times 15 = \mathbf{4.5 \text{ kg}}$
30.  $120 \div 8 \times 195 \div 120 = \mathbf{13 \text{ tins}}$
31.  $\$60 \div \pounds 45 \times \pounds 75 = \mathbf{\$100}$
32.  $180 \div 2.5 \times 4 = \mathbf{288 \text{ km}}$

## Section E: Real-World Applications

33. **Flour: 450g, Sugar: 300g, Butter: 225g**
34. **Red paint: 12 litres, Total: 20 litres**
35. Total parts = 9; Boys:  $4 \times 80 = \mathbf{320}$ ; Girls:  $5 \times 80 = \mathbf{400}$
36. **Distance: 750 km, Time: 4 hours**
37.  **$\$119, \pounds 72, \pounds 150$**
38. Total parts = 9;  **$\pounds 4,000 : \pounds 6,000 : \pounds 8,000$**
39.  **$1:250,000$ , Real distance: 30 km**
40. **Brazilian: 16 kg, Ethiopian: 8 kg, Total: 48 kg**

# Teaching Notes

## Common Mistakes to Watch For:

- **Decimals:** Not aligning decimal points, forgetting to include zeros as placeholders
- **Scale:** Confusing map distance with real distance, forgetting to convert units
- **Ratios:** Not simplifying to lowest terms, incorrect calculation of total parts

## Extension Activities:

- Create your own decimal word problems using real prices
- Design a scale drawing of your classroom
- Research ratios in cooking recipes from different countries

## Assessment Criteria:

- **Excellent (36-40 marks):** Confident with all concepts, accurate calculations
- **Good (30-35 marks):** Mostly accurate with minor errors
- **Satisfactory (24-29 marks):** Basic understanding, some calculation errors
- **Needs Support (<24 marks):** Requires additional practice and support