Educational Worksheet

Answer Key: Map Scale Problems

Grade 7 Mathematics - Medium Difficulty
Total Marks: 40

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

Section C: Real Distance to Map Distance

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

Section D: Scale Drawing Problems

20. 24 m = 2,400 cm ÷ 200 = **12 cm**
21. 8 cm × 500 = 4,000 cm = **40 m**; 6 cm × 500 = 3,000 cm = **30 m**
22. 4.8 m = 480 cm ÷ 32 = **15 cm**
23. 5.5 m ÷ 100 = **5.5 cm**; 4.2 m ÷ 100 = **4.2 cm**

Section E: Real-World Applications

23. 23 × 10,000 = 230,000 cm = **2.3 km**; Cost = 2.3 × £50,000 = **£115,000**

26. (15 + 8) × 2,000 = 23 × 2,000 = **46,000 cm = 460 m**
27. Real distance = 6 × 50,000 = 300,000 cm; On Map 2: 300,000 ÷ 100,000 = **3 cm**
28. Scale 1:5,000: 150m = 15,000cm ÷ 5,000 = **3 cm**; 80m = 8,000cm ÷ 5,000 = **1.6 cm** Scale 1:2,000: 15,000 ÷ 2,000 = **7.5 cm**; 8,000 ÷ 2,000 = **4 cm**

Teaching Notes

Common Mistakes to Watch For:

- **Unit Conversion**: Confusing cm, m, and km conversions
- **Scale Direction**: Mixing up map distance with real distance
- **Multiplication vs Division**: Using wrong operation for the conversion
- **Decimal Places**: Rounding errors in calculations

Extension Activities:

- Create scale drawings of the school playground
- Use online maps to practice measuring real distances
- Design a treasure map with accurate scale
- Compare different map scales of the same area

Assessment Criteria:

- **Excellent (36-40 marks)**: Confident with scale conversions and applications
- **Good (30-35 marks)**: Mostly accurate with minor unit conversion errors
- **Satisfactory (24-29 marks)**: Basic understanding, some calculation mistakes
- **Needs Support (<24 marks)**: Requires additional practice with scale concepts

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This answer key corresponds to: map-scale-problems.md