Educational Worksheet

Grade 7 Mathematics Worksheet

Map Scale

Name: _____ Date: _____ Class: _____

Learning Objectives

By the end of this worksheet, you will be able to: - Understand and interpret map scales - Convert between map distances and real distances - Solve problems involving scale drawings - Apply scale concepts to real-world situations

Instructions

- Show all your working clearly
- Include correct units in your answers
- Use a ruler when measuring is required
- Remember: Map distance × Scale = Real distance

Section A: Understanding Scale (6 marks)

Answer these questions about map scales:

1. **Scale Interpretation**: A map has a scale of 1:50,000. This means:
   - 1 cm on the map represents _____ cm in real life
   - 1 cm on the map represents _____ m in real life
   - 1 cm on the map represents _____ km in real life

2. **Scale Comparison**: Which scale shows more detail? Circle the correct answer: **1:25,000** or **1:100,000**

   Explain your answer: _____

3. **Scale Writing**: Write these scales in ratio form:
   - 1 cm represents 2 km: _____
   - 1 cm represents 500 m: _____
   - 2 cm represents 1 km: _____

Section B: Map Distance to Real Distance (8 marks)

Convert these map distances to real distances:

4. **Scale 1:20,000** Map distance: 5 cm Real distance: _____ m
5. **Scale 1:50,000** Map distance: 3.5 cm
   Real distance: _____ km
6. **Scale 1:25,000** Map distance: 8 cm Real distance: _____ m
7. **Scale 1:100,000** Map distance: 2.4 cm Real distance: _____ km
8. **Scale 1:10,000** Map distance: 12.5 cm Real distance: _____ m
9. **Scale 1:75,000** Map distance: 6.8 cm Real distance: _____ km
10. **Scale 1:200,000** Map distance: 4.5 cm Real distance: _____ km
11. **Scale 1:15,000** Map distance: 9.2 cm Real distance: _____ m

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Section C: Real Distance to Map Distance (8 marks)

Convert these real distances to map distances:

12. **Scale 1:30,000** Real distance: 1.5 km Map distance: _____ cm
13. **Scale 1:40,000** Real distance: 800 m Map distance: _____ cm
14. **Scale 1:25,000** Real distance: 2.5 km Map distance: _____ cm
15. **Scale 1:60,000** Real distance: 1,200 m Map distance: _____ cm
16. **Scale 1:80,000** Real distance: 3.2 km Map distance: _____ cm
17. **Scale 1:50,000** Real distance: 750 m Map distance: _____ cm
18. **Scale 1:35,000** Real distance: 1.75 km Map distance: _____ cm
19. **Scale 1:45,000** Real distance: 900 m Map distance: _____ cm

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Section D: Scale Drawing Problems (8 marks)

Solve these scale drawing problems:

20. **Garden Design**: Sarah is designing a garden. She draws a plan using a scale of 1:200.
    - The real garden is 24 m long. How long should she draw it on her plan?

    Answer: _____ cm
21. **School Map**: On a school map with scale 1:500, the playground measures 8 cm × 6 cm.
    - What are the real dimensions of the playground?

    Answer: _____ m × _____ m

22. **Model Car**: A model car is built to a scale of 1:32. The real car is 4.8 m long.
    - How long is the model car?

    Answer: _____ cm

23. **Room Plan**: An architect draws a room plan using scale 1:100. The real room is 5.5 m × 4.2 m.
    - What should the dimensions be on the plan?

    Answer: _____ cm × _____ cm

Section E: Real-World Applications (10 marks)

Apply your scale knowledge to these situations:

24. **Walking Route**: On a map with scale 1:25,000, Tom measures a walking route as 14 cm.
    - How far will he actually walk?
    - If Tom walks at 4 km/h, how long will the walk take?

    Distance: _____ km **Time:** _____ hours _____ minutes

25. **City Planning**: A town planner uses a map with scale 1:10,000 to plan a new road.
    - The road on the map is 23 cm long
    - What is the real length of the road?
    - If the road costs £50,000 per km to build, what will the total cost be?

    Real length: _____ km **Total cost:** £_____

26. **Treasure Hunt**: Children are using a map with scale 1:2,000 for a treasure hunt.
    - They need to walk from point A to point B, which are 15 cm apart on the map
    - Then from point B to point C, which are 8 cm apart on the map
    - What is the total real distance they need to walk?

    Answer: _____ m

27. **Comparison Problem**: Two maps show the same area:
    - Map 1 has scale 1:50,000 and the distance between two towns is 6 cm
    - Map 2 has scale 1:100,000
    - What would the distance between the same two towns be on Map 2?

    Answer: _____ cm

28. **Scale Drawing Challenge**: A rectangular field is 150 m long and 80 m wide.
    - Draw this field using a scale of 1:5,000
    - What dimensions should your drawing have?
    - If you used a different scale of 1:2,000, what would the dimensions be?

Total: _____ / 40 marks

Self-Assessment

- I understand what map scales mean: □ Confident □ Mostly □ Need practice
- I can convert map distances to real distances: □ Confident □ Mostly □ Need practice
- I can convert real distances to map distances: □ Confident □ Mostly □ Need practice
- I can solve scale problems: □ Confident □ Mostly □ Need practice

Key Formulas to Remember

- **Real distance = Map distance × Scale number**
- **Map distance = Real distance ÷ Scale number**
- **Always check your units!**