Measure and use a scale

Check Your Skill Level | 48 canonical questions | Stages 01-06

Stage 01: Read quantities and units

Recognise

Show your working or construction on paper. State units where asked. For questions 7 and 8, explain your method. Numerical entries may be rounded to 2 decimal places.

Work on separate paper. Plot and label figures; retain compass arcs. Give a reason for items 7 and 8.

1. Which unit is suitable for a ruler length: cm, m or degrees?

2. Which unit is suitable for a field length: cm, m or degrees?

3. Which unit is suitable for a measured turn: cm, m or degrees?

4. Which unit is suitable for a triangle side on paper: cm, m or degrees?

5. Which unit is suitable for a road length: cm, m or degrees?

6. Which unit is suitable for an angle: cm, m or degrees?

7. Diagnose an error. Which unit is suitable for a ruler length: cm, m or degrees? A learner answers “Degrees”. Give the correct answer and identify why the proposed answer fails.

8. Explain your choice. Which unit is suitable for a field length: cm, m or degrees?

Self-check after attempting: use the separate answer key on the skill page. Correct reasoning and a valid drawing matter as well as the final answer.

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Stage 02: Interpret ruler and scale readings

Interpret

Show your working or construction on paper. State units where asked. For questions 7 and 8, explain your method. Numerical entries may be rounded to 2 decimal places.

Work on separate paper. Plot and label figures; retain compass arcs. Give a reason for items 7 and 8.

1. A ruler starts at 3 cm and ends at 7.25 cm. Find the length in cm.

2. A protractor shows 110° on the scale starting at zero on the base ray, and 70° on the other scale. Which reading is the angle?

3. A ruler starts at 5 cm and ends at 11.5 cm. Find the length in cm.

4. A protractor shows 140° on the scale starting at zero on the base ray, and 40° on the other scale. Which reading is the angle?

5. Which unit is suitable for an angle: cm, m or degrees?

6. Which unit is suitable for a ruler length: cm, m or degrees?

7. Diagnose an error. A ruler starts at 3 cm and ends at 7.25 cm. Find the length in cm. A learner answers “5.25”. Give the correct answer and identify why the proposed answer fails.

8. Explain your choice. A protractor shows 110° on the scale starting at zero on the base ray, and 70° on the other scale. Which reading is the angle?

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Stage 03: Convert a drawing length

Perform

Show your working or construction on paper. State units where asked. For questions 7 and 8, explain your method. Numerical entries may be rounded to 2 decimal places.

Work on separate paper. Plot and label figures; retain compass arcs. Give a reason for items 7 and 8.

1. A map states 1 cm represents 5 m. A line is 5 cm on paper. Find its real length in m.

2. A map states 1 cm represents 8 m. A line is 6.5 cm on paper. Find its real length in m.

3. A map states 1 cm represents 12 m. A line is 7.5 cm on paper. Find its real length in m.

4. A map states 1 cm represents 10 m. A line is 2 cm on paper. Find its real length in m.

5. A protractor shows 65° on the scale starting at zero on the base ray, and 115° on the other scale. Which reading is the angle?

6. A ruler starts at 3 cm and ends at 7.25 cm. Find the length in cm.

7. Diagnose an error. A map states 1 cm represents 5 m. A line is 5 cm on paper. Find its real length in m. A learner answers “26”. Give the correct answer and identify why the proposed answer fails.

8. Explain your choice. A map states 1 cm represents 8 m. A line is 6.5 cm on paper. Find its real length in m.

Self-check after attempting: use the separate answer key on the skill page. Correct reasoning and a valid drawing matter as well as the final answer.

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Stage 04: Work backward to the drawing

Select & Adapt

Show your working or construction on paper. State units where asked. For questions 7 and 8, explain your method. Numerical entries may be rounded to 2 decimal places.

Work on separate paper. Plot and label figures; retain compass arcs. Give a reason for items 7 and 8.

1. At a scale of 1 : 800, a real length is 52 m. Find its drawing length in cm.

2. At a scale of 1 : 1200, a real length is 90 m. Find its drawing length in cm.

3. At a scale of 1 : 1000, a real length is 20 m. Find its drawing length in cm.

4. At a scale of 1 : 2000, a real length is 70 m. Find its drawing length in cm.

5. A map states 1 cm represents 4 m. A line is 4.25 cm on paper. Find its real length in m.

6. A map states 1 cm represents 5 m. A line is 5 cm on paper. Find its real length in m.

7. Diagnose an error. At a scale of 1 : 800, a real length is 52 m. Find its drawing length in cm. A learner answers “7.5”. Give the correct answer and identify why the proposed answer fails.

8. Explain your choice. At a scale of 1 : 1200, a real length is 90 m. Find its drawing length in cm.

Self-check after attempting: use the separate answer key on the skill page. Correct reasoning and a valid drawing matter as well as the final answer.

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Stage 05: Combine scale and a perimeter

Connect & Justify

Show your working or construction on paper. State units where asked. For questions 7 and 8, explain your method. Numerical entries may be rounded to 2 decimal places.

Work on separate paper. Plot and label figures; retain compass arcs. Give a reason for items 7 and 8.

1. A rectangle measures 7.5 cm by 2 cm on a map with 1 cm representing 12 m. Find its real perimeter in m.

2. A rectangle measures 2 cm by 2 cm on a map with 1 cm representing 10 m. Find its real perimeter in m.

3. A rectangle measures 3.5 cm by 2 cm on a map with 1 cm representing 20 m. Find its real perimeter in m.

4. A rectangle measures 4.25 cm by 2 cm on a map with 1 cm representing 4 m. Find its real perimeter in m.

5. At a scale of 1 : 500, a real length is 25 m. Find its drawing length in cm.

6. At a scale of 1 : 800, a real length is 52 m. Find its drawing length in cm.

7. Diagnose an error. A rectangle measures 7.5 cm by 2 cm on a map with 1 cm representing 12 m. Find its real perimeter in m. A learner answers “229”. Give the correct answer and identify why the proposed answer fails.

8. Explain your choice. A rectangle measures 2 cm by 2 cm on a map with 1 cm representing 10 m. Find its real perimeter in m.

Self-check after attempting: use the separate answer key on the skill page. Correct reasoning and a valid drawing matter as well as the final answer.

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Stage 06: Check a survey measurement

Transfer & Solve

Show your working or construction on paper. State units where asked. For questions 7 and 8, explain your method. Numerical entries may be rounded to 2 decimal places.

Work on separate paper. Plot and label figures; retain compass arcs. Give a reason for items 7 and 8.

1. On a 1 : 1000 survey plan, 2 cm is labelled 200 m. Is the label correct?

2. On a 1 : 2000 survey plan, 3.5 cm is labelled 700 m. Is the label correct?

3. On a 1 : 400 survey plan, 4.25 cm is labelled 170 m. Is the label correct?

4. On a 1 : 500 survey plan, 5 cm is labelled 250 m. Is the label correct?

5. A rectangle measures 6.5 cm by 2 cm on a map with 1 cm representing 8 m. Find its real perimeter in m.

6. A rectangle measures 7.5 cm by 2 cm on a map with 1 cm representing 12 m. Find its real perimeter in m.

7. Diagnose an error. On a 1 : 1000 survey plan, 2 cm is labelled 200 m. Is the label correct? A learner answers “Yes”. Give the correct answer and identify why the proposed answer fails.

8. Explain your choice. On a 1 : 2000 survey plan, 3.5 cm is labelled 700 m. Is the label correct?

Self-check after attempting: use the separate answer key on the skill page. Correct reasoning and a valid drawing matter as well as the final answer.

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