Ratios with Scale Drawings

Ratios with scale drawings: Models and calculations

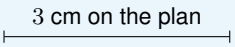
Name _____ **Date** _____ **Score** _____ / 6

QUICK REVIEW

A scale is a ratio of drawing length to actual length. At 1 cm : 4 m, a 3-cm segment represents $3 \times 4 = 12$ m. Reverse by dividing: 20 m requires $20/4 = 5$ cm. For area, convert both side lengths before multiplying.

Worked example

At 1 cm : 5 m, what actual length does 3 cm represent?



1. Each drawing centimeter represents 5 m; $3 \times 5 = 15$ m.
2. Reverse check: $15 \div 5 = 3$ cm.

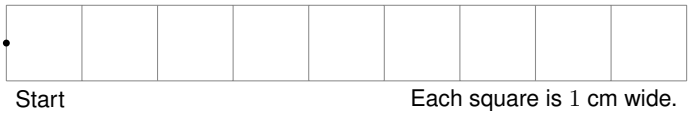
Answer: 15 m.

Practice Problems

Show your thinking.

1. Scale 1 cm : 4 m. Find actual length for 6 cm.

2. Scale 1 cm : 3 m. From the start dot, draw a horizontal segment for a 24-m path. State its drawing length.



3. A model road is 4 cm at 1 cm : 5 m. Find actual meters.

4. At 1 cm : 2 m, how long should a 14-m wall be on the plan?

5. At 1 cm : 10 m, what does a 3-cm side represent?

6. A rectangular plan is 3 cm by 4 cm at 1 cm : 2 m. Find actual area.

Answer Key

1. 24 m.
2. 8 cm.
3. 20 m.
4. 7 cm.
5. 30 m.
6. 48 m^2.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Each drawing centimeter represents 4 m; $6 \times 4 = 24$ m.
2. Reverse check: $24 \div 4 = 6$ cm.

Problem 2

1. Each drawing centimeter represents 3 m, so drawing length $= 24 \div 3 = 8$ cm.
2. Check the actual length: $8 \times 3 = 24$ m.
3. Draw from the dot to the right across exactly 8 square widths; the endpoint lies on the eighth vertical line after the start.

Problem 3

1. Each drawing centimeter represents 5 m; $4 \times 5 = 20$ m.
2. Reverse check: $20 \div 5 = 4$ cm.

Problem 4

1. Each drawing centimeter represents 2 m, so drawing length $= 14 \div 2 = 7$ cm.
2. Check the actual length: $7 \times 2 = 14$ m.

Problem 5

1. Each drawing centimeter represents 10 m; $3 \times 10 = 30$ m.
2. Reverse check: $30 \div 10 = 3$ cm.

Problem 6

1. Actual sides are $3 \times 2 = 6$ m and $4 \times 2 = 8$ m.
2. Area $= 6 \times 8 = 48$ m^2, not 12×2.

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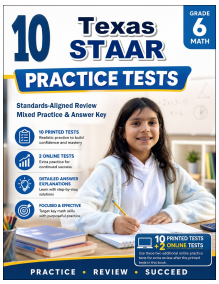

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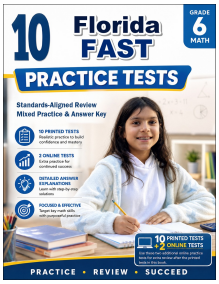

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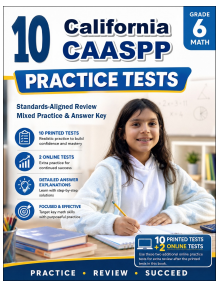

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