Area with Fractional Side Lengths

Area with Fractional Side Lengths: Apply, Compare, and Design

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

QUICK REVIEW

Rectangle area is $A = l \times w$, even when the side lengths are fractions. Multiply the numerators and the denominators, then simplify. The result is in square meters because it counts parts of a one-meter-by-one-meter square.

Worked example

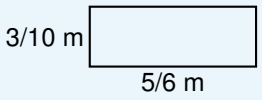
Find the area of the rectangle. Its side lengths are $\frac{5}{6}$ m and $\frac{3}{10}$ m.

1. Area is length times width: $A = \frac{5}{6} \times \frac{3}{10}$.

2. $5 \times 3 = 15$ and $6 \times 10 = 60$.

3. $A = \frac{15}{60} = \frac{1}{4}$ m^2.

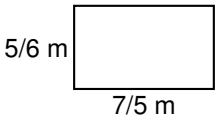
Answer: $\frac{1}{4}$ m^2.



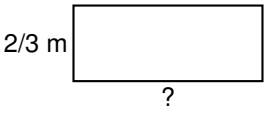
Practice Problems

Show your thinking.

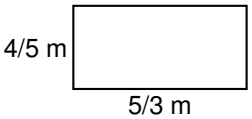
1. A paper piece has area $\frac{5}{3}$ m^2. A rectangle $\frac{7}{5}$ m by $\frac{5}{6}$ m is cut from it. Find the unused area.



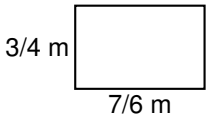
2. Design a rectangle with width $\frac{2}{3}$ m and area $\frac{3}{2}$ m^2. Supply the length and verify the area.



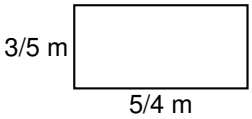
3. Two identical mats each measure $\frac{5}{3}$ m by $\frac{4}{5}$ m. Find their total area.



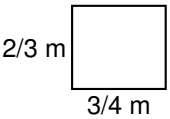
4. A rectangular patch is $\frac{7}{6}$ m by $\frac{3}{4}$ m. Is its area less than $\frac{9}{8}$ m^2? Find the gap.



5. A paper piece has area $\frac{5}{4}$ m^2. A rectangle $\frac{5}{4}$ m by $\frac{3}{5}$ m is cut from it. Find the unused area.



6. Two identical mats each measure $\frac{3}{4}$ m by $\frac{2}{3}$ m. Find their total area.



Answer Key

1. $\frac{1}{2}$ m^2 unused.
2. $2\frac{1}{4}$ m.
3. $\frac{8}{3}$ m^2.
4. Yes; by $\frac{1}{4}$ m^2.
5. $\frac{1}{2}$ m^2 unused.
6. 1 m^2.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Area is length times width: $A = \frac{7}{5} \times \frac{5}{6}$.
2. $7 \times 5 = 35$ and $5 \times 6 = 30$.
3. $A = \frac{35}{30} = \frac{7}{6}$ m^2.
4. $\frac{5}{3} - \frac{7}{6} = \frac{1}{2}$ m^2.

Problem 2

1. Split the known width into 2 strips of $\frac{1}{3}$ m. Each strip has area $\frac{3}{2} \div 2 = \frac{3}{4}$ square meters.
2. 3 such strips span 1 m and cover $3 \times \frac{3}{4} = \frac{9}{4}$ square meters. So the length is $\frac{9}{4}$ m.
3. Check: $\frac{9}{4} \times \frac{2}{3} = \frac{3}{2}$ square meters.

Problem 3

1. Area is length times width: $A = \frac{5}{3} \times \frac{4}{5}$.
2. $5 \times 4 = 20$ and $3 \times 5 = 15$.
3. $A = \frac{20}{15} = \frac{4}{3}$ m^2.
4. $2 \times \frac{4}{3} = \frac{8}{3}$ m^2.

Problem 4

1. Area is length times width: $A = \frac{7}{6} \times \frac{3}{4}$.
2. $7 \times 3 = 21$ and $6 \times 4 = 24$.
3. $A = \frac{21}{24} = \frac{7}{8}$ m^2.
4. $\frac{9}{8} - \frac{7}{8} = \frac{1}{4}$ m^2.

Problem 5

1. Area is length times width: $A = \frac{5}{4} \times \frac{3}{5}$.
2. $5 \times 3 = 15$ and $4 \times 5 = 20$.
3. $A = \frac{15}{20} = \frac{3}{4}$ m^2.
4. $\frac{5}{4} - \frac{3}{4} = \frac{1}{2}$ m^2.

Problem 6

1. Area is length times width: $A = \frac{3}{4} \times \frac{2}{3}$.
2. $3 \times 2 = 6$ and $4 \times 3 = 12$.
3. $A = \frac{6}{12} = \frac{1}{2}$ m^2.
4. $2 \times \frac{1}{2} = 1$ m^2.

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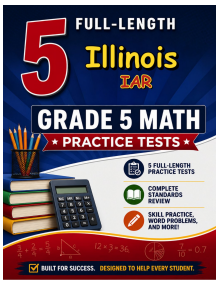

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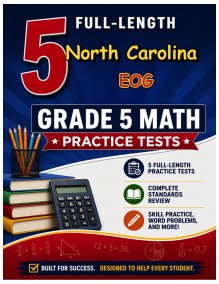

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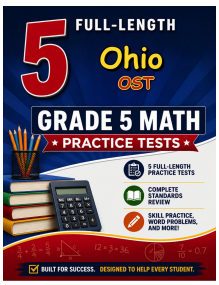

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