Area of Triangles

Area of triangles: Models and calculations

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

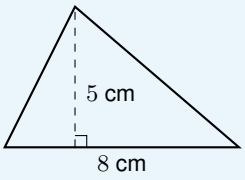
QUICK REVIEW

Triangle area is $A = \frac{1}{2}bh$. The height is perpendicular to the chosen base, not a slanted side. A base of 8 cm and perpendicular height 5 cm gives $A = \frac{1}{2}(8)(5) = 20$ cm^2. For a missing height, $h = 2A/b$. Sketches are not to scale.

Worked example

Find the area using the dashed perpendicular height.

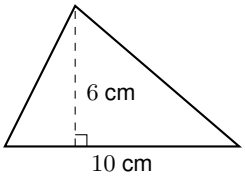
1. The matching rectangle has area $8 \times 5 = 40$ cm^2.
2. The triangle is half: $40/2 = 20$ cm^2.
Answer: 20 cm^2.



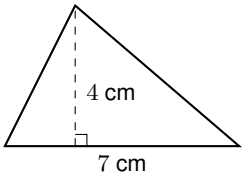
Practice Problems

Show your thinking.

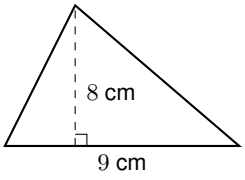
1. Find this triangle area.



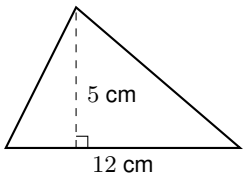
2. Use a rectangle with the same base and height. Find the rectangle area first, then the triangle area.



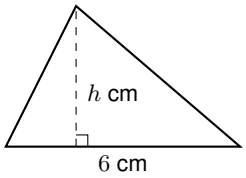
3. Use the perpendicular height, not a slanted edge.



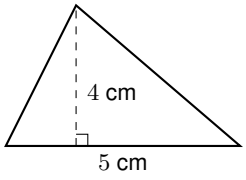
4. A triangular paper sign has these dimensions. Find its area.



5. Find missing height h. Area is 9 cm^2.



6. A student forgets the one-half factor. Correct the triangle area.



Answer Key

1. 30 cm^2.
2. Rectangle: 28 cm^2; triangle: 14 cm^2.
3. 36 cm^2.
4. 30 cm^2.
5. 3 cm.
6. 10 cm^2.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. The matching rectangle has area $10 \times 6 = 60$ cm^2.
2. The triangle is half: $60/2 = 30$ cm^2.

Problem 2

1. The matching rectangle has area $7 \times 4 = 28$ cm^2.
2. The triangle is half: $28/2 = 14$ cm^2.

Problem 3

1. The matching rectangle has area $9 \times 8 = 72$ cm^2.
2. The triangle is half: $72/2 = 36$ cm^2.

Problem 4

1. The matching rectangle has area $12 \times 5 = 60$ cm^2.
2. The triangle is half: $60/2 = 30$ cm^2.

Problem 5

1. Double the area: $2 \times 9 = 18$ cm^2.
2. Divide by the known base: $18/6 = 3$ cm.
3. Check $\frac{1}{2}(6)(3) = 9$ cm^2.

Problem 6

1. The matching rectangle has area $5 \times 4 = 20$ cm^2.
2. The triangle is half: $20/2 = 10$ cm^2.

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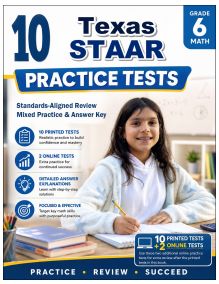

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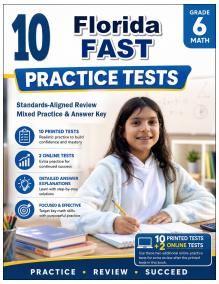

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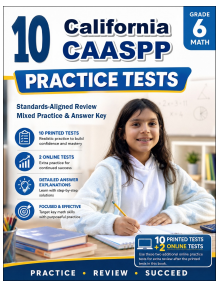

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