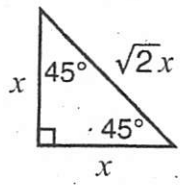
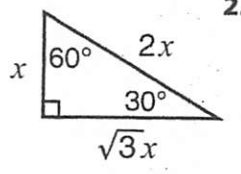
Name _____

Special Right Triangles

Remember

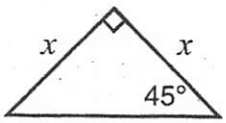


1. In a **45°–45°–90°** right triangle, the hypotenuse is $\sqrt{2}$ times as long as each leg.



2. In a **30°–60°–90°** right triangle, the hypotenuse is twice as long as the short leg. The long leg is $\sqrt{3}$ times as long as the short leg.

Example: Find the missing lengths.



$\sqrt{2}\,x = 8$

$x = \frac{8}{\sqrt{2}}$

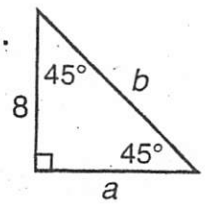
$= \frac{8}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$

$= \frac{8\sqrt{2}}{2}$

$= 4\sqrt{2}$

Use the 30°–60°–90° and the 45°–45°–90° triangle relationships to solve for the missing sides. Follow your answers in alphabetical order through the maze.

1.



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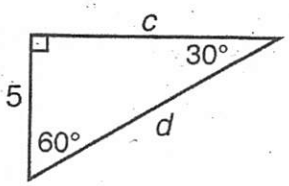

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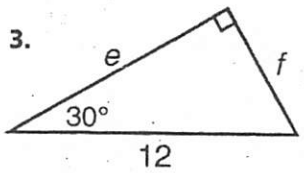

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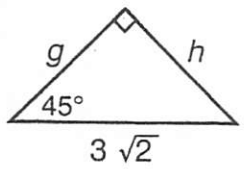

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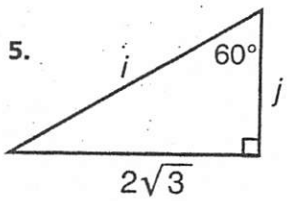

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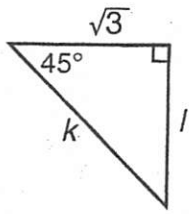

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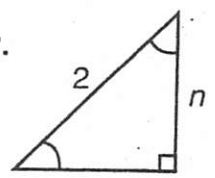

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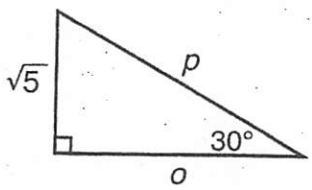

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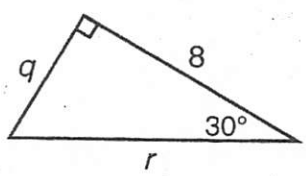
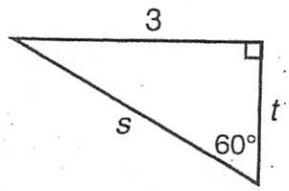
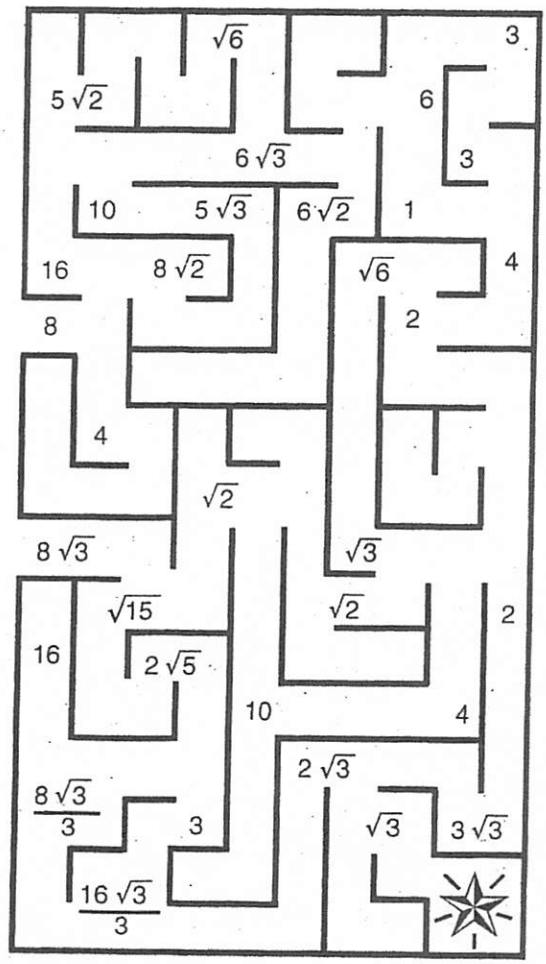


10.





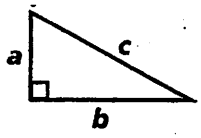
Name _____

The Pythagorean Theorem

Remember

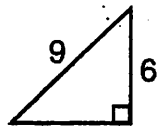
In a right triangle, the sum of the squares of the legs is equal to the square of the hypotenuse:

$c^2 = a^2 + b^2$



Example:

Find the length of the missing side.



$9^2 = 6^2 + b^2$

$81 = 36 + b^2$

$45 = b^2$

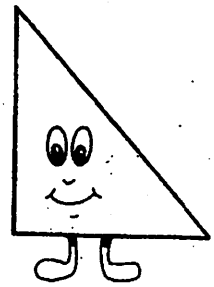
$\sqrt{45} = b$

$\sqrt{9} \cdot \sqrt{5} = b$

$3\sqrt{5} = b$

Solve for the missing side. Use the answer code to find the special name for three integers whose lengths form a right triangle.

TIP! A 3-4-5 triangle has a leg-to-leg-to-hypotenuse ratio of 3:4:5. If you can spot multiples of these numbers, you can solve those problems easily.



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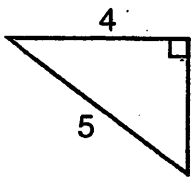

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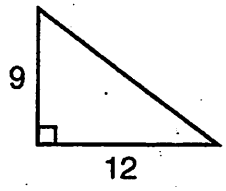

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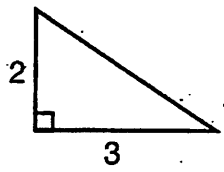

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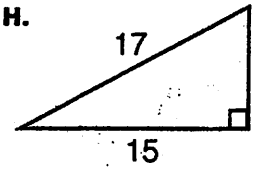
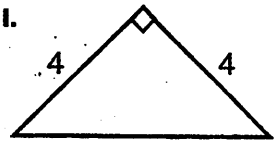


I.



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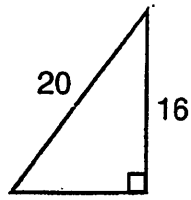

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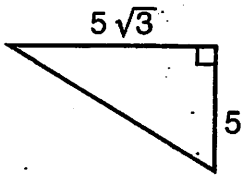

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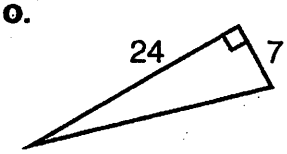

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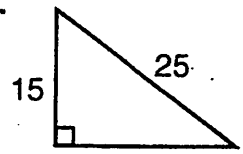

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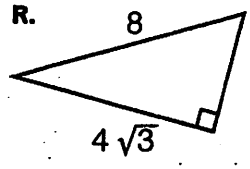

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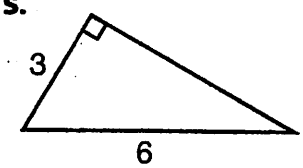

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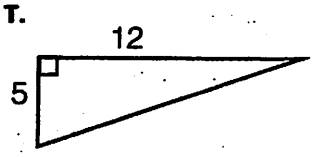

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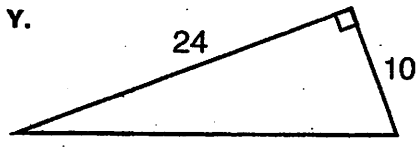

20	26	13	8	3	$\sqrt{13}$	25	4	15	3	10

13	4	$4\sqrt{2}$	20	12	15	$3\sqrt{3}$