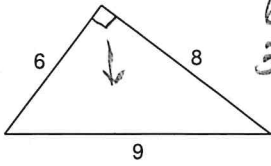


The Pythagorean Theorem

Do the following lengths form a right triangle?

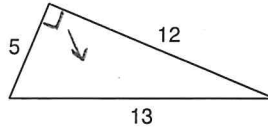
$a^2 + b^2 = c^2$ ← $c = \text{hypotenuse}$

1) Example:

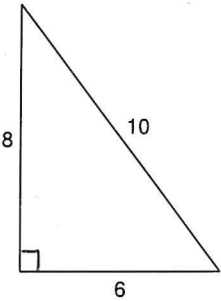


$6^2 + 8^2 = 9^2$
 $36 + 64 = 81$
 $100 \neq 81$
No

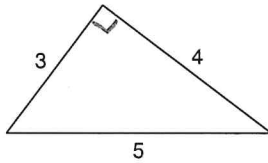
2)



3)



4)

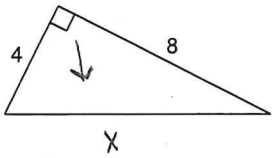


5) $a = 6.4, b = 12, c = 12.2$

6) $a = 2.1, b = 7.2, c = 7.5$

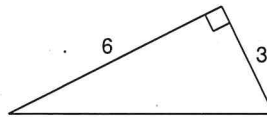
Find each missing length to the nearest tenth.

7) Example

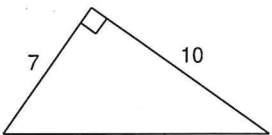


$4^2 + 8^2 = x^2$
 $16 + 64 = x^2$
 $\sqrt{80} = \sqrt{x^2}$
 $8.94 \approx x$
 $8.9 = x$

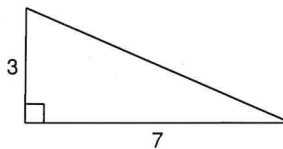
8)



9)



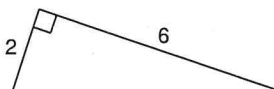
10)



11)



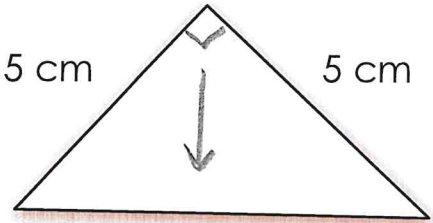
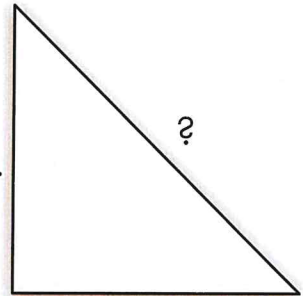
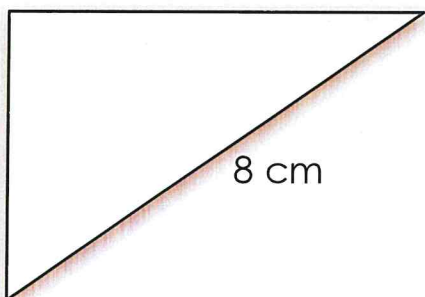
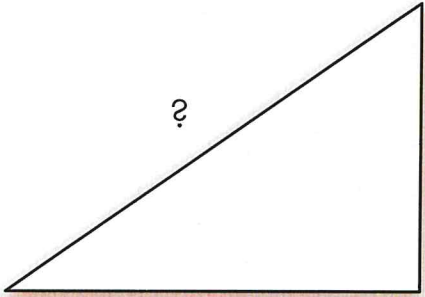

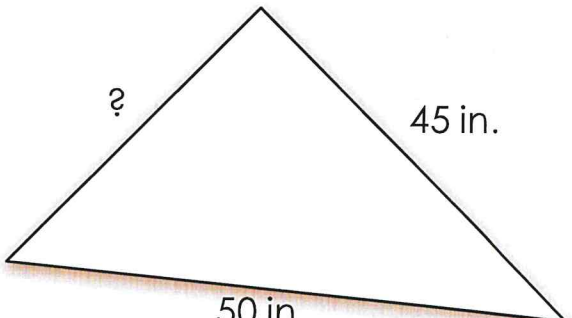
12)



APPLY THE PYTHAGOREAN THEOREM

Practice

Find the length of each missing side. Round to the nearest hundredth if necessary and show your work on a separate sheet of paper.

<p>1) Example</p>  <p>5 cm 5 cm</p> <p>?</p> $5^2 + 5^2 = x^2$ $25 + 25 = x^2$ $\sqrt{50} = \sqrt{x^2}$ <p>7.071</p> <div style="border: 1px solid black; padding: 2px; display: inline-block;"> $x = 7.07$ </div>	<p>2)</p>  <p>14 ft.</p> <p>?</p> <p>13 ft.</p>
<p>3)</p>  <p>?</p> <p>3 cm</p> <p>8 cm</p>	<p>4)</p>  <p>?</p> <p>45 cm</p> <p>50 cm</p>
<p>5)</p>  <p>18 ft.</p> <p>12 ft.</p> <p>?</p>	<p>6)</p>  <p>?</p> <p>45 in.</p> <p>50 in.</p> <p style="text-align: right;">9</p>

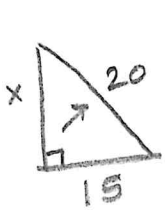
APPLY THE PYTHAGOREAN THEOREM

Practice

example

Read each problem carefully. Show your work. Round your answer to the nearest hundredth.

1) A tree is leaning up against the side of a house. The bottom of the tree is 15 feet away from the house. The tree is 20 feet long. How tall is the house?



$$\begin{aligned}
 x^2 + 15^2 &= 20^2 \\
 x^2 + 225 &= 400 \\
 -225 &\quad -225 \\
 \hline
 \sqrt{x^2} &= \sqrt{175} \\
 x &= 13.228
 \end{aligned}$$

13.23 feet tall

2) A 20 foot flag pole is casting a shadow that is 12 feet long. How far is the top of the flag pole from the end of the shadow?

_____ feet

3) A wheelchair ramp is 10 feet long. The ramp sits up on a 2 foot platform. How far is it from the end of the ramp to the bottom of the platform?

_____ feet

4) Three cities form a right triangle on a map. Cities B and C are the furthest apart. If cities A and B are 14 miles apart and cities A and C are 22 miles apart, how far apart are cities B and C?

_____ miles

5) Luke is building a bike ramp. The ramp is going to be 3 feet tall on the high end and is 6 feet long. How long is the base of the ramp?

_____ feet

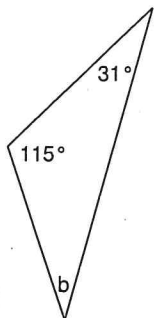
6) A palm tree casts a 14 foot shadow. The end of the shadow is 22 feet from the top of the tree. How tall is the tree?

_____ feet tall ¹¹

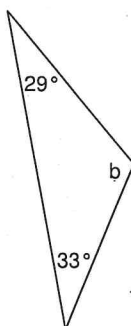
Angle Sum of Triangles and Quadrilaterals

Find the measure of angle b. Remember the sum of the angles in a triangle equal 180° .

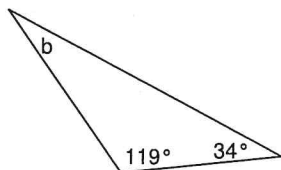
1)



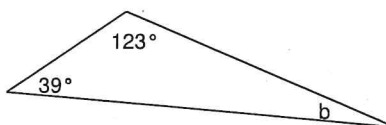
2)



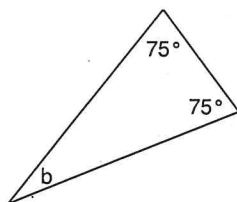
3)



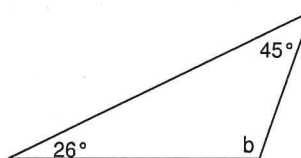
4)



5)

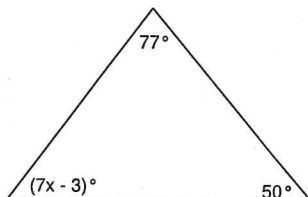


6)



Find the value of x.

7)



8)

