

Topic: Pythagoras's theorem

Introduction:

The Pythagoras' Theorem is very popular in trigonometry (triangles). The practical uses of this theorem are almost limitless. Some applications are astronomy, physics, engineering, and geography. The theorem can be expanded beyond triangles and geometry to apply to any shape. Because of this, it can be applied to some very unexpected fields, such as computer science and people in a social network.

Refresher Video:

<https://youtu.be/ku4rEwRxZOc>

Summary:

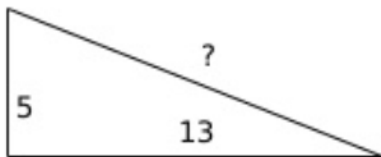
In a right-angled triangle, the pythagoras' Theorem is used to calculate a missing side when the other two sides are known. It is given by:

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

where, a and b are the shorter sides, and c is the side opposite to the 90 degrees angle. c is called the *hypotenuse*.

Example a:

Q: Find the missing side. Round your answer to *1 decimal place*.



A:

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

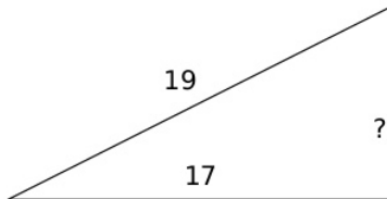
$$5^2 + 13^2 = c^2$$

$$\sqrt{5^2 + 13^2} = c$$

$$13.9 = c$$

Example b:

Q: Find the missing side. Round your answer to *1 decimal place*



A:

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

$$a^2 + 17^2 = 19^2$$

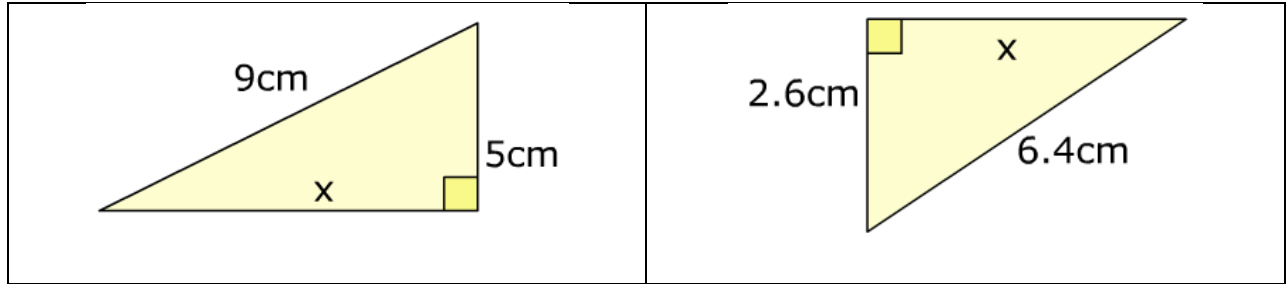
$$a^2 = 19^2 - 17^2$$

$$a = \sqrt{19^2 - 17^2} = 8.5$$

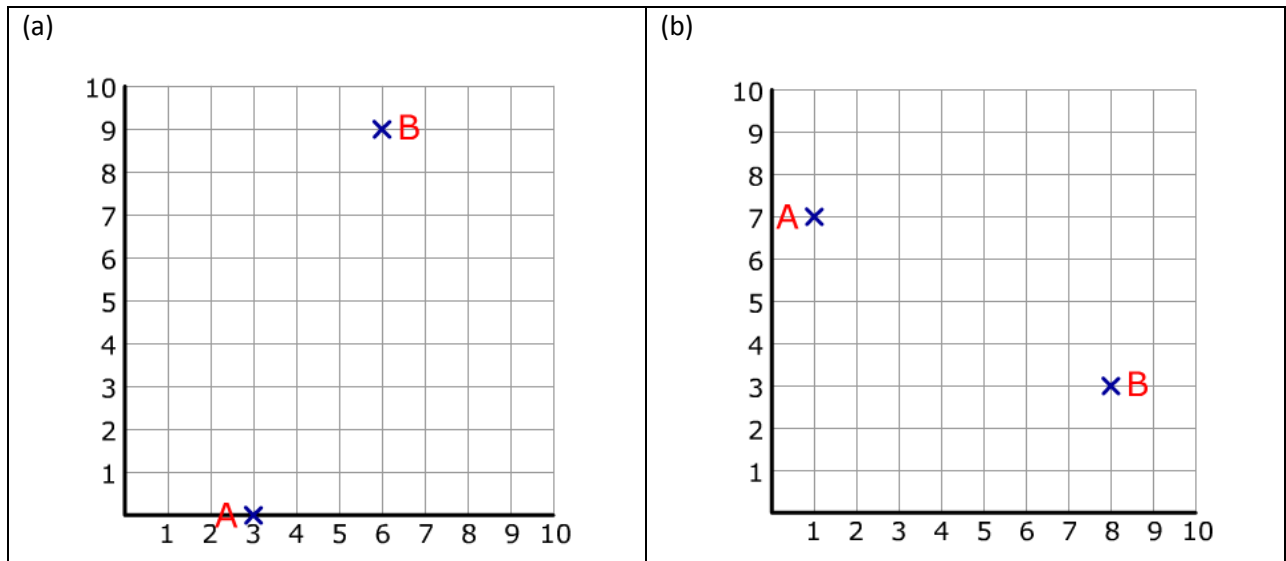
Questions:

1) Find the length x . Give your answers correct to *1 decimal place*.

<p>(a)</p>	<p>(b)</p>
<p>(c)</p>	<p>(d)</p>



2) Find the distance **AB**. Give your answers correct to 1 decimal place.



Answers:

- 1)
- (a) 10.6
 - (b) 8.1
 - (c) 7.5
 - (d) 5.8

- 2)
- (a) 9.5
 - (b) 8.1



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