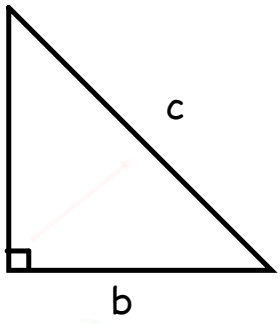
5.2 Right Triangles

Pythagorean Theorem

Pythagoras of Samos (570 - 495 BC)
Ancient Greek philosopher and mathematician

5.2 Right Triangles

In any right-angled triangle:



hypotenuse
The longest side.
It is always across from the right angle.

Pythagorean Theorem

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

hypotenuse

Pythagorean Theorem $a^2 + b^2 = c^2$ ONLY works for RIGHT triangles!

Ex. 1: Is a triangle with sides 12m, 5m, and 13m, a right-angled triangle?

➡ Recall: $a^2 + b^2 = c^2$

➡ Let's check:

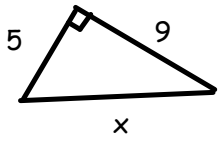
LS	RS

Fast Fact ➡

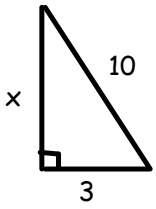
Pythagorean Triples			
(3, 4, 5)	(9, 40, 41)	(16, 63, 65)	(36, 77, 85)
(5, 12, 13)	(11, 60, 61)	(20, 21, 29)	(39, 80, 89)
(7, 24, 25)	(12, 35, 37)	(28, 45, 53)	(48, 55, 73)
(8, 15, 17)	(13, 84, 85)	(33, 56, 65)	(65, 72, 97)

Figure 2 - A short list of Pythagorean triples.
Pythagorean Triples are integers which exactly fit the Pythagorean formula. The number of possible Pythagorean triples is infinite.

Ex. 2: Find the length of the missing side.

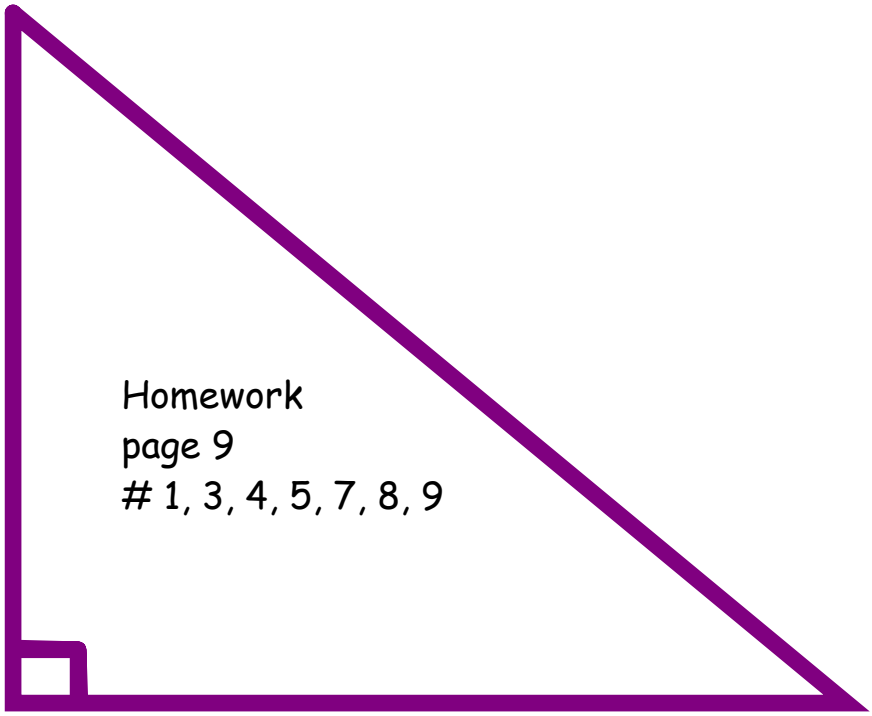


Ex. 3: a) Find the length of the missing side.
b) Find the perimeter of the triangle.



Ex. 4:

A 3.5 m ladder is leaning against the wall.
The base of the ladder is 1 m from the wall.
How high up the wall does the top of the ladder reach?


Homework
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Attachments

Pythagorean Theorem.gallery