




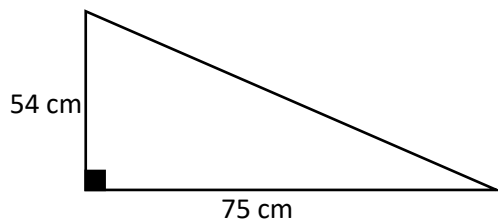
Check Your Understanding – Pythagorean Theorem and Combining Like Terms

The table below identifies the key concepts from this unit.

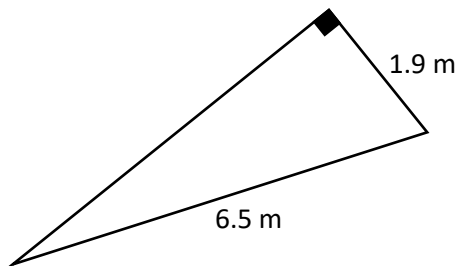
1. Check your understanding by completing these questions.
2. Check your answers in the key provided.
3. In the table below, highlight the questions you got correct.
4. Ask peers/Dr. James about concepts where you can improve.

Key Concepts	 Mild	 Medium	 Spicy
Pythagorean Theorem	1, 2	3, 4	5, 6
Combining Like Terms	7	8, 9	10

1) Find the missing side length in the triangle below



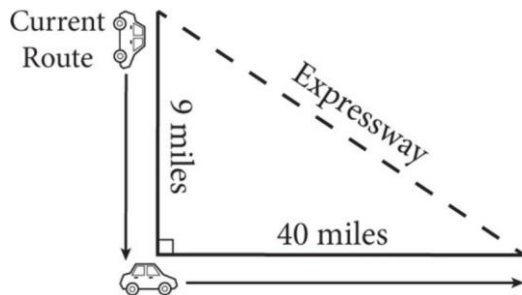
2) Find the missing side length in the triangle below



3) Complete the missing side lengths for each right triangle in the table below (create "Pythagorean Triples")

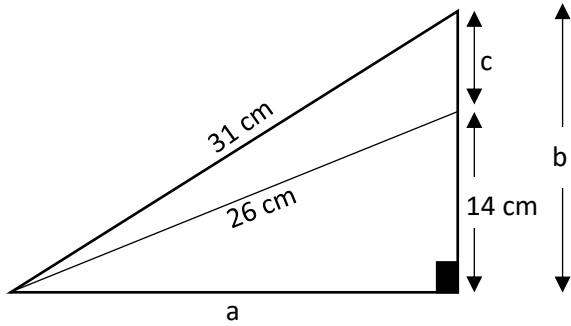
	Leg 1	Leg 2	Hypotenuse
Triangle 1	3 m	4 m	
Triangle 2		108 cm	125 cm
Triangle 3	18.6 ft		25.2 ft

4) A driver has two possible routes to get home. They can either drive 9 miles south, then turn and drive 40 miles east (the current route), or they can take the expressway, as shown below. How much shorter is the expressway than the current path?



5) A 15 m ladder is leaning up against a tall building. The base of the ladder is placed 6 m from the building. How high does the top of the ladder reach?

6) Find the missing side lengths (a, b, and c) in the image below.



7) Simplify by combining like terms

$$3x^6 + 7x^6 - 2x^6$$

8) Simplify by combining like terms

$$(4m^4a^2 - 2ma) + (3m^4a^2 + 8ma)$$

9) Simplify by combining like terms

$$(16st^3 + 3s^3t) - (12s^3t - 4st^3)$$

10) Simplify by combining like terms

$$(18a^3bc^2 - 4a^3bc^2) + (7a^6b^7 + 16ab) - (a^3bc^2 - 3a^6b^7 + ab)$$

Answers

1) 92.4 cm

2) 6.2 m

3) Triangle 1) 5 m Triangle 2) 62.9cm Triangle 3) 17 ft

4) Current route is 49 miles, Expressway is 41 miles. The Expressway is 8 miles shorter.

5) The top of the ladder reaches 13.7 m

6) $a = 21.9 \text{ cm}$ $b = 21.9 \text{ cm}$ $c = 7.9 \text{ cm}$

7) $8x^6$

8) $7m^4a^2 + 6ma$

9) $20st^3 - 9s^3t$

10) $13a^3bc^2 + 10a^6b^7 + 15ab$