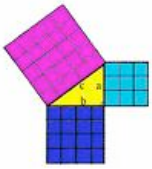


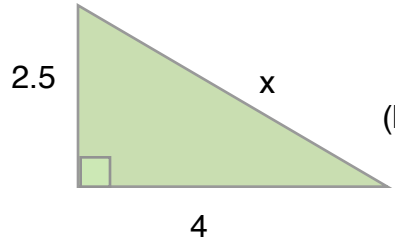
Pythagoras' Assessment.

NAME:_____

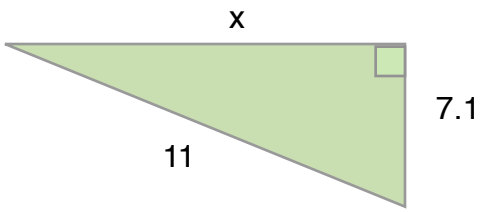
In this assessment you will be assessed in criteria A, B, C and D.

1. Find the value of x in each of these right triangles. Show clear methodology and working!

(a)

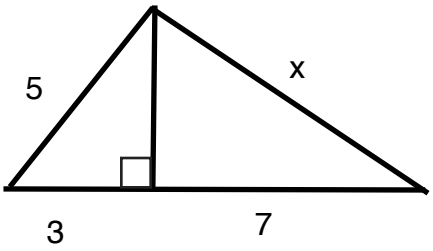


(b)

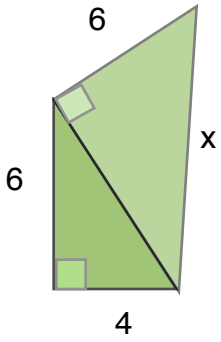


2. Find the value of x in each of these shapes:

(a)



(b)

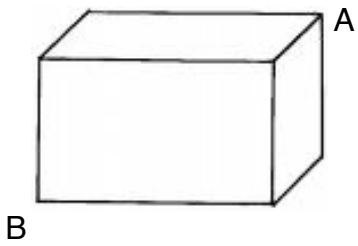


3. Find the length of a diagonal of a rectangle of side 3 cm by 4 cm.

4. A ladder is 2 m long and its base is 90 cm from the base of a vertical wall. How far up the wall does it reach? Give your answer to the nearest cm.

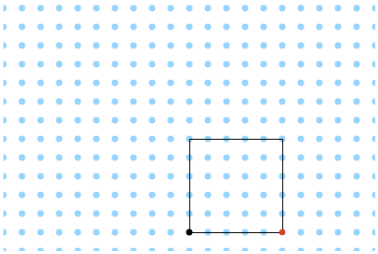
5. **(For category D)** Miki has made a concrete floor which he believes is rectangular. The sides are 4.52 m by 5.21 m, and the diagonal is 6.51 m. Investigate if Miki's floor is rectangular?

6. **(The unfamiliar question!)** A room is 3.0 m high, 4.2m long and 3.7 m wide. Find the length of the diagonal going from A to B.

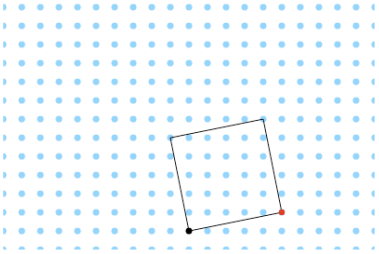


Pattern Investigation (criterion B) with areas of square using Pythagoras' Theorem.

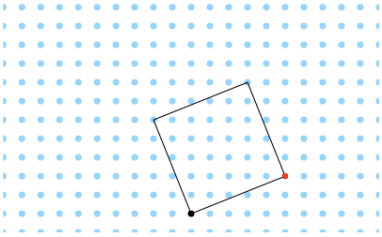
Shape 1



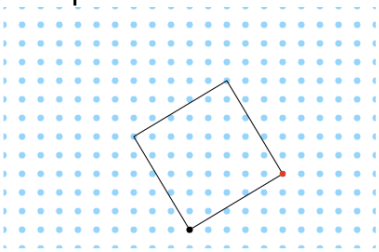
Shape 2



Shape 3



Shape 4



In the spaces below, draw the next three shapes following the pattern started above. Think carefully where you will place the first 'dot'!

Shape 5

Shape 6

Shape 7

For each of the shapes, find the area of the square. Show your working here!

Shape 1 Shape 2 Shape 3

Shape 4 Shape 5 Shape 6 Shape 7

Now complete the following table:

Shape	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Area							

Can you spot a pattern?

What would be the area of the 8th shape?

For the following table, fill in the values of **$x^2 - 2x + 26$** for the corresponding values of x

x	**1**	**2**	**3**	**4**	**5**	**6**	**7**
$x^2 - 2x + 26$							

Can you spot a connection between the two tables?

Find the area of the 100th shape in this sequence.

(Again - this is for Criteria D) The first shape was a 5 by 5 square. What do you think would happen if the initial square was of different dimensions to this?

Explain your reasoning.

For category D
Look at these two squares that have been divided. Write a few sentences to describe how these prove Pythagoras' Theorem.