

Lilian Surgeson
Pythagoras' Theorem Lesson Plan - 3rd March 2011

Lesson Aims:

- Introduce pupils to Pythagoras' Theorem
- Enable pupils to understand why Pythagoras' Theorem works by means of visual proof
- Pupils to develop competence applying Pythagoras' Theorem to calculate the length of the hypotenuse.

Starter - 5 mins

- Calculating the area of a square given the sides, mentally and using a calculator
- Calculating the sides of squares from the given area, mentally and using calculator

Introduction and Explanation - 5 mins

- State/show learning objectives
 1. Discover what Pythagoras' Theorem states
 2. Understand when it works and why
 3. Be able to use it to solve a problem involving a right-angled triangle
- Statement of Pythagoras' Theorem both in words and as an equation.
- Explain conditions for Theorem - must be a right-angled triangle of *any* size
- Show picture of a right angled triangle labelled a,b,c and explain hypotenuse is longest side and always opposite right-angle.

Examples

- 2 guided examples of how to apply the theorem, one with simple decimals - more if necessary.

Activity - 10 minutes

Task 1 on the worksheet

Pause for marking, assessment.

Brief explanation of

Activity - 10 minutes

Task 2 on the worksheet

Extension - Task 3

Pause for marking

Explanation - Visual Proof - 5 minutes

- Show pupils initial stages of visual proof
- Discuss what how they think we might be able to prove the theorem
- Show pictorial proof
- Discuss sizes of triangles and if this has effect on the theorem

Plenary/Assessment of Learning - 5 minutes

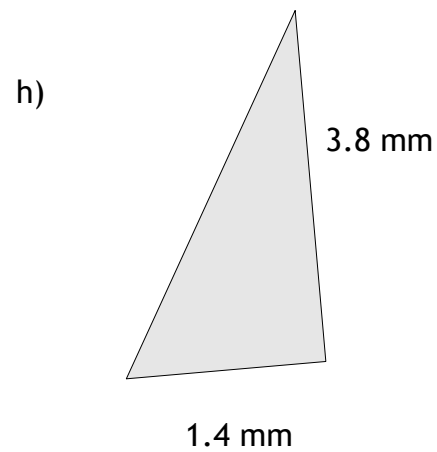
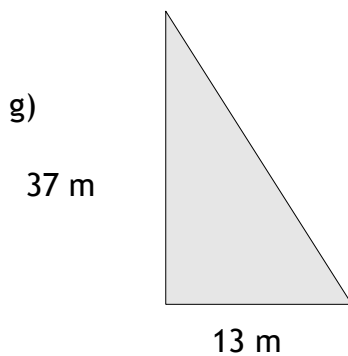
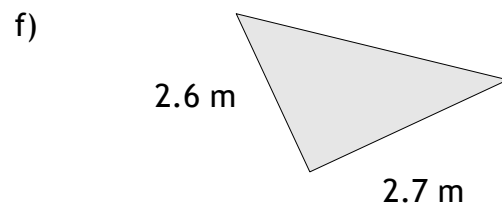
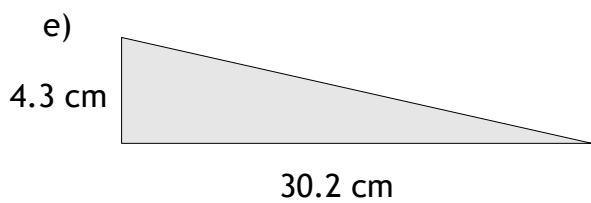
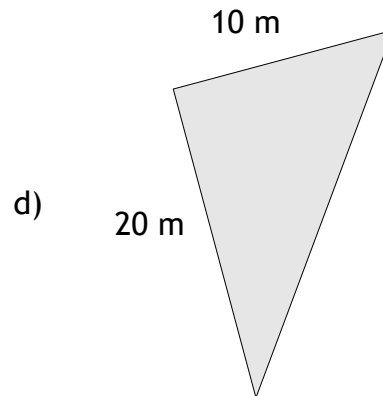
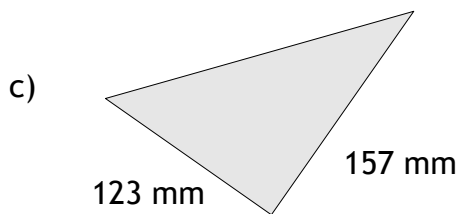
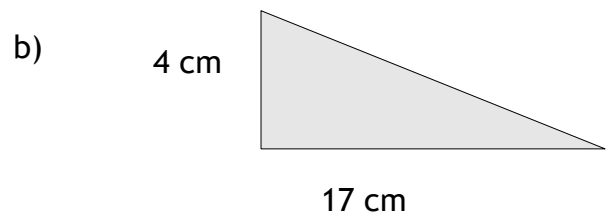
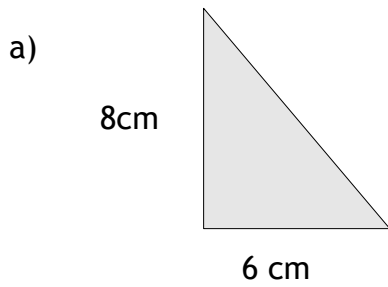
Solve a written problem using pythagoras' theorem.

Exploring Pythagoras' Theorem



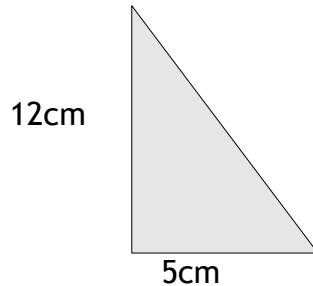
Task 1

Calculate the length of the hypotenuse on each of the following triangles, showing all your workings. Give answers to the appropriate number of decimal places.



Task 2

Using a sharp pencil and a ruler, draw this triangle to the correct size:

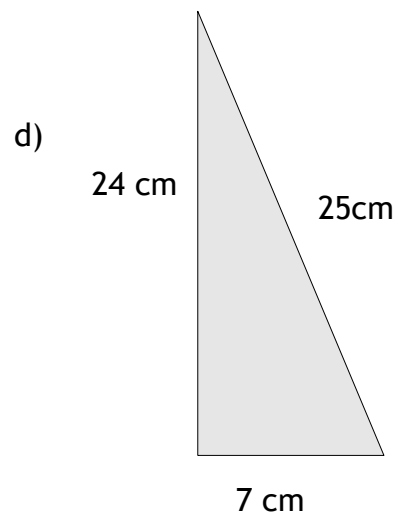
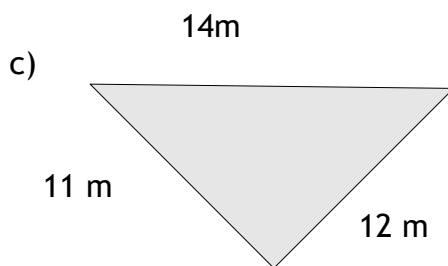
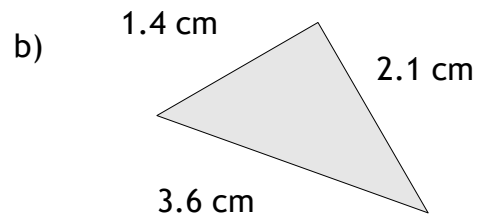
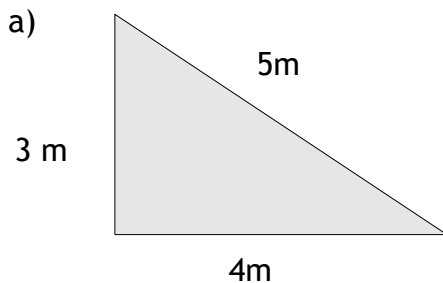


Calculate the length of the hypotenuse and measure it to check your calculations are correct

Then - draw another 3 triangles using measurements of your own choosing, calculate the length of each hypotenuse and measure it to check you are correct.

Task 3

If these triangles are truly right-angled then Pythagoras' Theorem will apply to them. Check each of these triangles.



Hint: Use the two shortest sides to calculate the length of the hypotenuse and see if it matches the one given.

