**Calculate the area and perimeter of each of the shapes below. Do not scale. All measurements are given in cm.**

**Keywords:**

Pythagoras Theorem

Perpendicular (at right angles to)

Square

Square root

**Key Ideas**

1. Draw a neat diagram.
2. Mark on the perpendicular height and the other measurements.
3. Use Pythagoras' Theorem to find the missing lengths including the perpendicular height.

**Formulae you will need:**

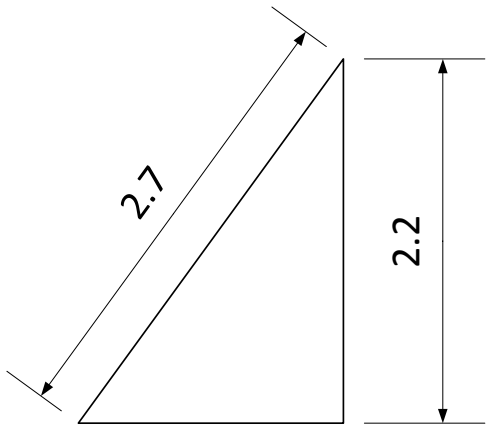
$$c^2 = a^2 + b^2$$

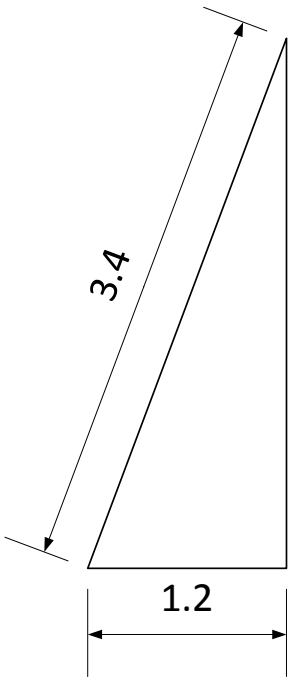
$$\therefore a^2 = c^2 - b^2$$

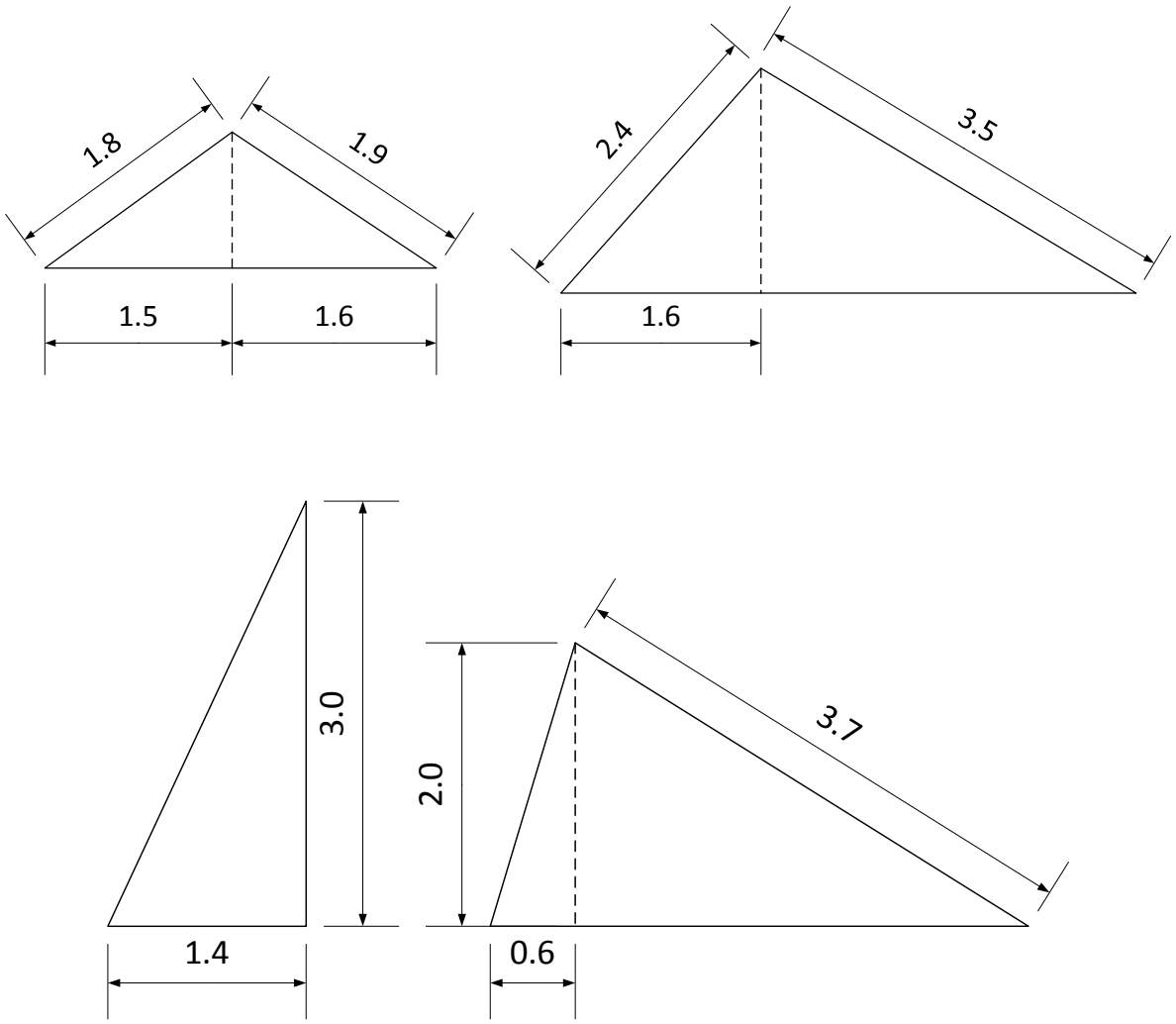
$$Area\ of\ a\ triangle = \frac{1}{2}\ base\ \times perpendicular\ height$$

$$Perimeter\ of\ a\ triangle = \sum sides$$

$\sum means\ sum\ of\ which\ means\ you\ need\ to\ add\ all\ the\ sides\ together\ in\ this\ case.$

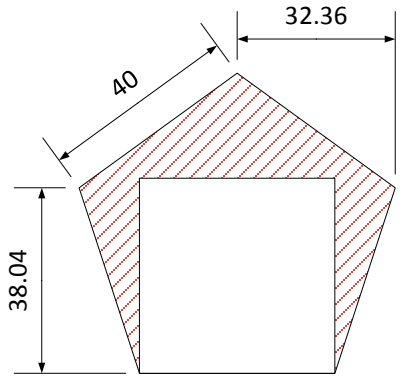





**Challenge Question**

The diagram shows a regular pentagon and a square. All the sides are of equal length. Find the area of the shaded part of this shape:




*Hint: Calculate the area of the pentagon by splitting it into right angled triangles.*

*Answers*

| Height | Base | Area | Perimeter |
|---|---|---|---|
| 2.2 | 1.565247584 | 1.721772342 | 6.465247584 |
| 3.181194744 | 0.6 | 1.908716846 | 7.781194744 |
| 0.9949874371 | 3.1 | 1.542230528 | 6.8 |
| 1.788854382 | 4.608321791 | 4.121808315 | 10.50832179 |
| 3 | 1.4 | 2.1 | 7.710589071 |
| 2 | 4.712876483 | 9.425752967 | 9.612876483 |