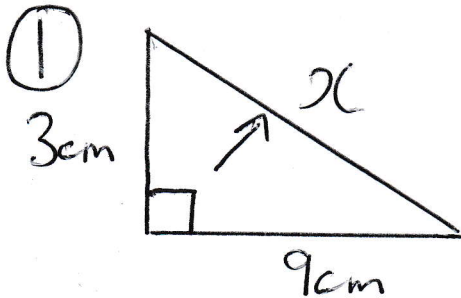


ES5 N5 Applications of Maths (Geometry & Measure)

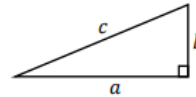
Pythagoras' Theorem

Worked Solutions Courtesy of Mr R. Milton



You are given the below in the exam:

Theorem of Pythagoras



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

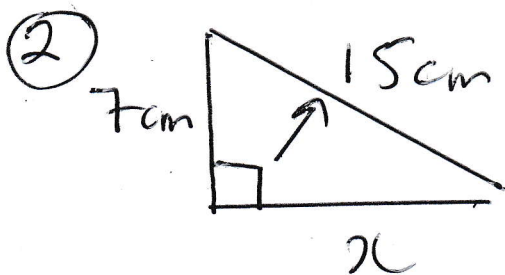
$$x^2 = 3^2 + 9^2$$

$$x^2 = 9 + 81$$

$$x^2 = 90$$

$$x = \sqrt{90}$$

$$x = 9.49 \text{ cm (2 DP)} \quad \checkmark$$



$$x^2 = 15^2 - 7^2$$

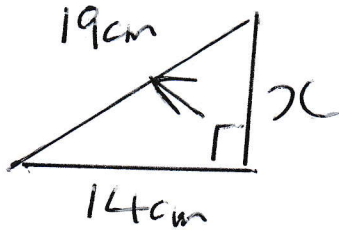
$$x^2 = 225 - 49$$

$$x^2 = 176$$

$$x = \sqrt{176}$$

$$x = 13.27 \text{ cm (2 DP)} \quad \checkmark$$

③



$$x^2 = 19^2 - 14^2$$

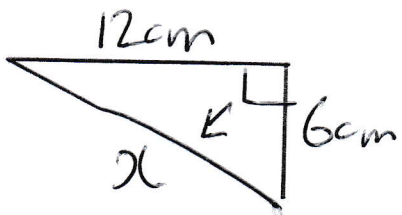
$$x^2 = 361 - 196$$

$$x^2 = 165$$

$$x = \sqrt{165}$$

$$x = 12.85 \text{ cm (2DP)} \quad \checkmark$$

④



$$x^2 = 6^2 + 12^2$$

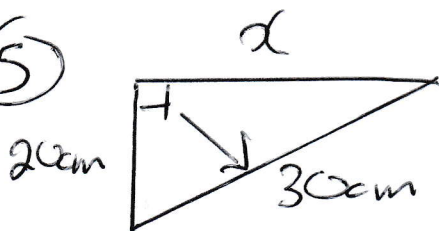
$$x^2 = 36 + 144$$

$$x^2 = 180$$

$$x = \sqrt{180}$$

$$x = 13.42 \text{ cm (2DP)} \quad \checkmark$$

⑤



$$x^2 = 30^2 - 20^2$$

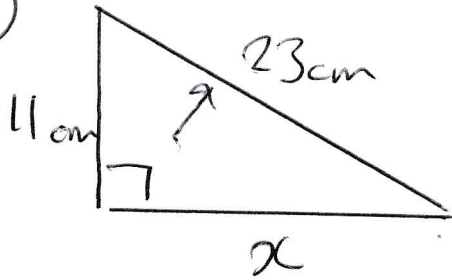
$$x^2 = 900 - 400$$

$$x^2 = 500$$

$$x = \sqrt{500}$$

$$x = 22.36 \text{ (2DP)} \quad \checkmark$$

⑥



$$x^2 = 23^2 - 11^2$$

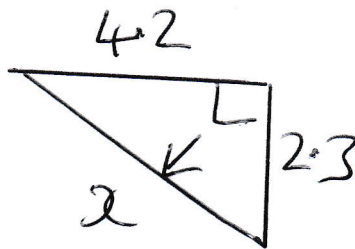
$$x^2 = 529 - 121$$

$$x^2 = 408$$

$$x = \sqrt{408}$$

$$x = 20.20 \text{ cm (2 DP)} \checkmark$$

⑦



$$x^2 = 4.2^2 + 2.3^2$$

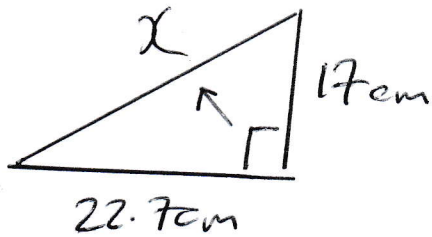
$$x^2 = 17.64 + 5.29$$

$$x^2 = 22.93$$

$$x = \sqrt{22.93}$$

$$x = 4.79 \text{ cm (2 DP)} \checkmark$$

⑧



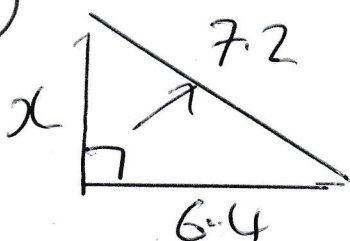
$$x^2 = 17^2 + 22.7^2$$

$$x^2 = 804.29$$

$$x = \sqrt{804.29}$$

$$x = 28.36 \text{ (2 DP)} \checkmark$$

⑨



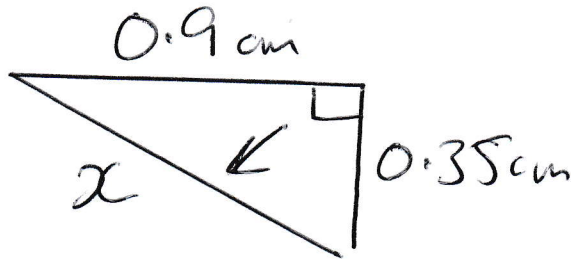
$$x^2 = 7.2^2 - 6.4^2$$

$$x^2 = 10.88$$

$$x = \sqrt{10.88}$$

$$x = 3.29 \text{ cm (2 DP)} \checkmark$$

10



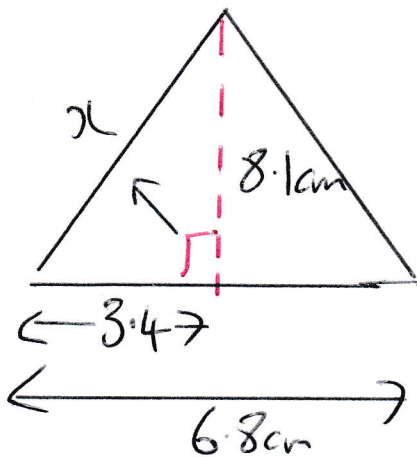
$$x^2 = 0.9^2 + 0.35^2$$

$$x^2 = 0.9325$$

$$x = \sqrt{0.9325}$$

$$x = 0.97 \text{ cm (2 DP)}$$

AQ



$$x^2 = 8.1^2 + 3.4^2$$

$$x^2 = 77.17$$

$$x = \sqrt{77.17}$$

$$x = 8.78 \text{ cm}$$

$$\begin{aligned} \text{RIBBON 1 BADGE} &= 8.78 + 8.78 + 6.8 \\ \text{(PERIMETER)} &= 24.36 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{RIBBON 30 BADGES} &= 24.36 \times 30 \\ &= 730.8 \text{ cm} \\ &= 7.308 \text{ m} \end{aligned}$$

$$= 7.31 \text{ m (2 DP)}$$