

Princess Vulnavia presents ... Cloud 9; Revision Raindrops

Applications of Pythagoras' Theorem

The Trigonometric Identity: $\sin^2\theta + \cos^2\theta \equiv 1$

Raindrop 9b

It is given that: $\sin 18^\circ = \frac{1}{4}(\sqrt{5} - 1)$

Use the trigonometric identity: $\sin^2\theta + \cos^2\theta \equiv 1$ to show that: $\cos 18^\circ = \frac{1}{4}\sqrt{a + \sqrt{b}}$

where a and b are natural numbers to be determined.

The answer follows on the next page ...

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Answer: $\cos 18 = \frac{1}{4} \sqrt{10 + \sqrt{20}}$

So, $a = 10$ and $b = 20$.