



The ratio of red cards to black cards in a deck is 2:3

$$2x : 3x$$

Two thirds of the red cards are removed and 8 more black cards are added.

The ratio of red cards to black cards is now 1:5

(16)

Work out the number of red cards now in the deck.

$$5\left(\frac{2}{3}(2x)\right) = 3x + 8 \quad \text{was } 48$$

$$\frac{10}{3}x = 3x + 8 \quad \begin{array}{r} \nearrow \\ - \frac{32}{16} \end{array}$$

$$\frac{1}{3}x = 8 \quad x = 24$$

Show that  $(\sqrt{2} + 3\sqrt{8})^2 = 98$

$$(\sqrt{2} + 3\sqrt{8})(\sqrt{2} + 3\sqrt{8})$$

$$2 + 12 + 12 + 72 = 98$$

Prove that when two consecutive integers are squared, that the difference is equal to the sum of the two consecutive integers.

$$(n+1)^2 = n^2 + 2n + 1$$

$$- n^2 = 2n + 1$$

$$n + (n+1) = 2n + 1$$

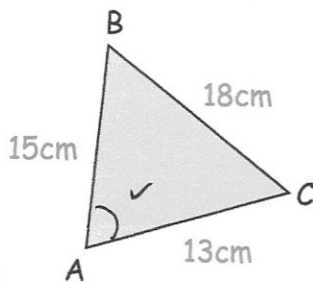
QED  
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$$(ax + 1)(x - 3)(x + b) \equiv 2x^3 - 3x^2 - 8x - 3$$

Find the values of a and b

$$a = 2 \quad (2x \times 2 \times 2 = 2x^3)$$

$$b = 1 \quad (1 \times -3 \times b = -3)$$



Find the size of the largest angle in this triangle.

$$\cos A = \frac{15^2 + 13^2 - 18^2}{2 \times 15 \times 13}$$

$$A = 79.66^\circ$$