16th January **Higher Plus 5-a-day**

Corbettmaths

Simplify

$(125x^6)^{\frac{2}{3}}$

$125^{\frac{2}{3}} = 25$

$25x^4$

A bag contains 10 sweets.
5 sweets are red.
3 sweets are yellow.
2 sweets are green.
Two sweets are taken from the bag without replacement.

$P(RR) = \frac{5}{10} \times \frac{4}{9} = \frac{20}{90}$

$P(YY) = \frac{3}{10} \times \frac{2}{9} = \frac{6}{90}$

$P(GG) = \frac{2}{10} \times \frac{1}{9} = \frac{2}{90}$

Work out the probability that the two sweets are different colours.

$1 - \frac{28}{90} = \frac{62}{90}$

$\frac{31}{45}$

w is directly proportional to c squared

When w = 16, c = 2

$w \propto c^2$

$w = kc^2$

Find the value of c when w = 28c – 49

$16 = k \times 4$

$k = 4$

$w = 4c^2$

$28c - 49 = 4c^2$

$4c^2 - 28c + 49 = 0$

$(2c - 7)(2c - 7) = 0$

$c = \frac{7}{2}$ or 3.5

Shown is a right angle triangle.

$(2x+3)^2 + (2x+4)^2 = (5x+1)^2$

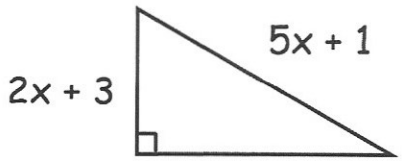
Find the value of x

$8x^2 + 28x + 25 = 25x^2 + 10x + 1$

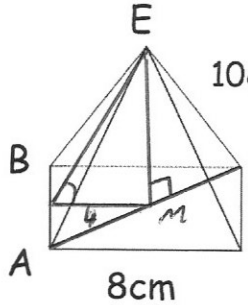
$17x^2 - 18x - 24 = 0$

$a = 17 \quad b = -18 \quad c = -24$

$x = \frac{18 \pm \sqrt{1956}}{34}$



$x = 1.83$ ✓ or $x = -0.77\ldots$ ✗



$AC^2 = 5^2 + 8^2$

$AC = 9.433\ldots$

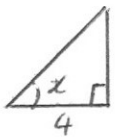
$AM = MC = 4.716\ldots$

$EC^2 = MC^2 + ME^2$

$10^2 = 4.716\ldots^2 + ME^2$

$ME = 8.817\ldots$

Shown is a rectangular based pyramid. The apex E is directly over the centre of the base. Calculate angle between the face ABE and the base ABCD



$\tan x = \frac{8.817\ldots}{4}$

$x = 65.6°$