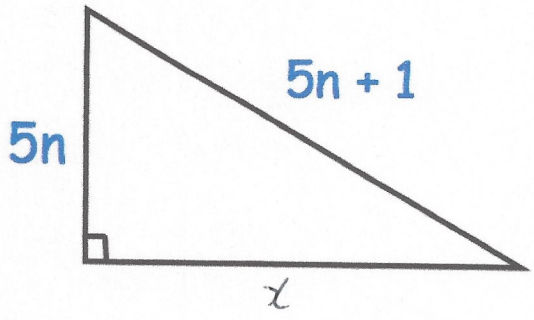
Name: _____ 5-a-day Higher Plus

4th September

Corbettmaths



Find an expression for the third side.

$(5n)^2 + x^2 = (5n+1)^2$

$25n^2 + x^2 = 25n^2 + 10n + 1$

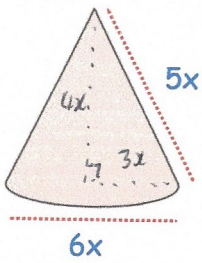
$x^2 = 10n + 1$

$x = \sqrt{10n+1}$

The cone is made from a material with density 5g/cm³.

Write an expression for the mass of the cone, in terms of x.

$d = \frac{M}{V}$



3, 4, 5 triangle

$V = \frac{1}{3} \times \pi \times (3x)^2 \times 4x$

$V = 12\pi x^3$

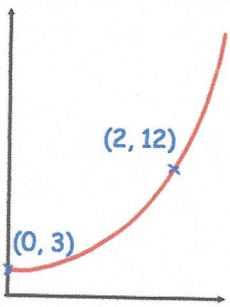
$5 \times 12\pi x^3$

$= 60\pi x^3$

The sketch shows a curve with equation $y = ab^x$ where a and b are constants and $b > 0$

The curve passes through the points (0, 3) and (2, 12)

Calculate the value of a and b



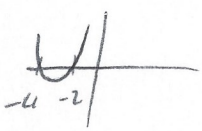
$3 = a$

$12 = 3 \times b^2$

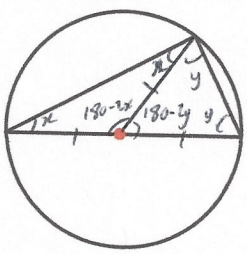
$b = 2$

Solve the inequality $x^2 + 6x + 8 < 0$

$(x+2)(x+4)$



$-4 < x < -2$



Prove that the angle in a semi-circle is always 90°

$(180 - 2x) + (180 - 2y) = 180$

$360 - 2x - 2y = 180$

$2x + 2y = 180$

$x + y = 90$ QED