

**24th December**

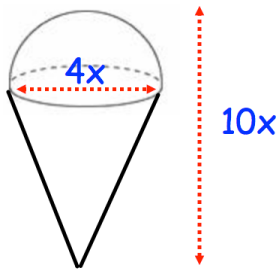
Corbettmaths

Expand and simplify

$$(5x + 3)(x - 1)(x + 2)$$

Simplify

$$\frac{4x^3 + 2x^2}{2x^2 - 9x - 5}$$



A solid is made by putting a hemisphere on top of a cone.

Find an expression for the volume in terms of  $x$ .

Lifetime (months)	Frequency
$0 < t \leq 12$	19
$12 < t \leq 24$	53
$24 < t \leq 36$	74
$36 < t \leq 48$	42
$48 < t \leq 120$	12

Calculate an estimate of the percentage of lightbulbs that last longer than 7 years.

Find the equation of the tangent to the circle  $x^2 + y^2 = 13$  at the point  $(-2, 3)$