Name: _____ 5-a-day Further Maths

22nd December

Corbettmaths

Simplify $\sqrt{300} + 5\sqrt{27}$

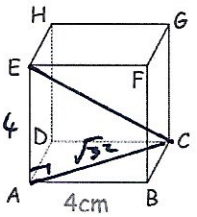
$10\sqrt{3} + 5(3\sqrt{3})$

$= 10\sqrt{3} + 15\sqrt{3}$

$25\sqrt{3}$

$=$

Here is a cube with side length 4cm



$AC^2 = 4^2 + 4^2$

$= 32$

$AC = \sqrt{32}$

Calculate the size of angle ACE

$\tan ACE = \frac{4}{\sqrt{32}}$

$\angle ACE = 35.26°$

ABC is a straight line with
AB:BC = 5:2 $5+2=7$

A(-4, 40)

B

C(45, 19)

Work out the coordinates of B.

$\vec{AC} = \begin{pmatrix} 49 \\ -21 \end{pmatrix}$ $\vec{AB} = \begin{pmatrix} 35 \\ -15 \end{pmatrix}$

B (31, 25)

Expand and simplify

$(x+3)^5$

1
1 1
1 2 1
1 3 3 1
1 4 6 4 1
1 5 10 10 5 1

x^5

$5 \times x^4 \times 3 = 15x^4$

$10 \times x^3 \times 3^2 = 90x^3$

$10 \times x^2 \times 3^3 = 270x^2$

$5 \times x \times 3^4 = 405x$

$3^5 = 243$

$x^5 + 15x^4 + 90x^3 + 270x^2 + 405x + 243$

Point A lies on the curve
$y = x^2 + 6x + 9$

The x-coordinate of A is –4

Find the equation of the normal to the curve at A.

$\frac{dy}{dx} = 2x + 6$

$x = -4$ $\frac{dy}{dx} = -2$ $y = 1$

$y = \frac{1}{2}x + c$

$1 = -2 + c$

$c = 3$

$y = \frac{1}{2}x + 3$