Name: _____ 5-a-day Further Maths

11th November

Corbettmaths

Expand and simplify fully
$(3+5\sqrt{2})(5-\sqrt{2})$

$= 15 - 3\sqrt{2} + 25\sqrt{2} - 10$
$= 5 + 22\sqrt{2}$

Use Pascal's triangle to expand

$(3+y)^4$

1 4 6 4 1
3^4 3^3y 3^2y^2 $3y^3$ y^4
$81 + 108y + 54y^2 + 12y^3 + y^4$

The nth term of a sequence is $\frac{200-2n}{70+5n}$

Write down the limiting value of the sequence as $n \to \infty$

$= \frac{\frac{200}{n} - 2}{\frac{70}{n} + 5} \to -\frac{2}{5}$

A curve has equation
$y = 1 + x - x^2$

Find the coordinates of the maximum point.

$= -[x^2 - x] + 1$
$= -[(x-\frac{1}{2})^2 - \frac{1}{4}] + 1$
$= \frac{5}{4} - (x-\frac{1}{2})^2$
Max pt $(\frac{1}{2}, \frac{5}{4})$