20th January

Corbettmaths

The nth term of a sequence is $\frac{1260 - 15n}{1260 + 15n}$ Work out the position of the term that has a value of zero	$1260 - 15n = 0$ $15n = 1260$ $n = 84$
Write down the limiting value of the sequence as $n \to \infty$ $\frac{-15n}{15n} = -1$	
$f(x) = (x+1)(x+3)$ for all values of x Write down the range of $f(x)$ $f(x) = x^2 + 4x + 3$ $= (x + 2)^2 - 1$	minimum point is $(-2, -1)$ $f(x) \geq -1$
Find the exact values of w $3^{w^2} = 9 \times 27^{w+5}$ $3^{w^2} = 3^2 \times (3^3)^{w+5}$ $3^{w^2} = 3^2 \times 3^{3w+15}$	$w^2 = 3w + 17$ $w^2 - 3w - 17 = 0$ $a = 1 \quad b = -3 \quad c = -17$ $x = \frac{3 \pm \sqrt{9+68}}{2} \quad x = \frac{3 \pm \sqrt{77}}{2}$ $x = \frac{3+\sqrt{77}}{2}$ or $x = \frac{3-\sqrt{77}}{2}$
Given $2^{89} - 1$ is prime. Show that $2^{89} + 1$ is a multiple of 3 If there are three consecutive integers, one of them is divisible by 3.	$2^{89}-1$, 2^{89}, $2^{89}+1$ prime; divisible by 2 but not 3; must be divisible by 3.