Name: _____ 5-a-day Further Maths

26th September

Corbettmaths

Simplify

$\sqrt{32} : \sqrt{50} : \sqrt{288}$

$4\sqrt{2} : 5\sqrt{2} : 12\sqrt{2}$

$4 : 5 : 12$

The nth term of a sequence is $\frac{2n^2 - 8}{3n^2 - 1}$

Find the limiting value of $\frac{2n^2 - 8}{3n^2 - 1}$ as $n \to \infty$

$= \frac{2 - \frac{8}{n^2}}{3 - \frac{1}{n^2}} \to \frac{2}{3}$

$(3x - 1)$ is a factor of

$3x^3 - 4x^2 + ax + 2 = f(x)$

Find a

$f\left(\frac{1}{3}\right) = 0 \Rightarrow \frac{1}{9} - \frac{4}{9} + \frac{1}{3}a + 2 = 0$

$\Rightarrow \frac{1}{3}a = -\frac{5}{3}$

$\Rightarrow a = -5$

Solve the simultaneous equations

$x^2 + y^2 = 20$

$x + 3y = 10 \Rightarrow x = 10 - 3y$

$(10 - 3y)^2 + y^2 = 20$

$100 - 60y + 10y^2 = 20$

$y^2 - 6y + 8 = 0$

$(y - 2)(y - 4) = 0$

$y = 2$ $\quad$ $y = 4$

$x = 4$ $\quad$ $x = -2$
