Name: _____ 5-a-day Higher Plus

3rd January

Corbettmaths

$25^{-0.5}$

$= \frac{1}{25^{0.5}}$

$= \frac{1}{\sqrt{25}} = \frac{1}{5}$

Prove

$(n+1)^2 - (n-1)^2 + 4$

is always even, if n is a positive integer.

$= n^2 + 2n + 1 - (n^2 - 2n + 1) + 4$

$= n^2 + 2n + 1 - n^2 + 2n - 1 + 4$

$= 4n + 4$

$= 4(n+1)$ ∴ Multiple of 4

∴ Even if $n > 0$ and integer

Rationalise the denominator

$\frac{\sqrt{3}}{\sqrt{2}}$

$\frac{\sqrt{3}}{\sqrt{2}} = \frac{\sqrt{2}}{\sqrt{2}}\left(\frac{\sqrt{3}}{\sqrt{2}}\right)$

$= \frac{\sqrt{6}}{2}$

Find the equation of the line that is perpendicular to 3x + y = 8 and passes through the point (1, 5)

$3x + y = 8$

$y = 8 - 3x$

Gradient $= -3$

Perpendicular line: $m = \frac{-1}{-3} = \frac{1}{3}$

↳ $y = \frac{1}{3}x + c$

at (1,5) $5 = \frac{1}{3} + c \rightarrow c = \frac{14}{3}$

∴ $y = \frac{1}{3}x + \frac{14}{3} \rightarrow 3y = x + 14$

Simplify

$(81x^8)^{-\frac{3}{4}} = \frac{1}{(81x^8)^{\frac{3}{4}}}$

$= \frac{1}{\left(\sqrt[4]{81x^8}\right)^3}$

$= \frac{1}{(3x^2)^3} = \frac{1}{27x^6}$