27th September

Corbettmaths

The point C has coordinates $(2, -3)$ and the point D has coordinates $(4, 6)$.

Find the equation of the line perpendicular to CD and passing through D.

gradient of CD $= \frac{6-(-3)}{4-2} = \frac{9}{2} = 4.5$

perpendicular gradient $= -\frac{2}{9}$

$y = -\frac{2}{9}x + c$

$6 = -\frac{2}{9}(4) + c$

$c = \frac{62}{9}$

$y = -\frac{2}{9}x + \frac{62}{9}$

$a = \frac{\sqrt{m}}{p}$

m = 2.46 correct to 3 significant figures

p = 1.045 correct to 4 significant figures

By considering bounds, work out the value of *a* to a suitable degree of accuracy

$\max a = \frac{\sqrt{2.465}}{1.0445}$

$= 1.503142027$

$\min a = \frac{\sqrt{2.455}}{1.0455} = 1.498655152$

1.50 to 2dp

Simplify the ratio

$\sqrt{27} : \sqrt{75} : \sqrt{1200}$

$\sqrt{9} \times \sqrt{3} : \sqrt{25} \times \sqrt{3} : \sqrt{400} \times \sqrt{3}$

$3\sqrt{3} : 5\sqrt{3} : 20\sqrt{3}$

3 : 5 : 20

Find the minimum point of the graph

$y = x^2 - 6x - 2$

$y = (x-3)^2 - 9 - 2$

$y = (x-3)^2 - 11$

(3, −11)

For all values of x,

$f(x) = x^2 + 4$

$g(x) = x - 9$

Solve $fg(x) = gf(x)$

$gf(x) = x^2 + 4 - 9 = x^2 - 5$

$fg(x) = (x-9)(x-9) + 4$

$x^2 - 5 = x^2 - 18x + 85$

$18x = 90$

$x = 5$