

Princess Vulnavia presents ... Cloud 9; Revision Raindrops

The Turning Point of a Parabola

Raindrop 2c: Exercise

2c(i) Express $5x^2 - 8x + 3$ in the form $a(x + p)^2 + q$ where a , p and q are constants to be determined.

(ii) Using the result from part (i), find the coordinates of the turning point of the parabola:

$$y = 5x^2 - 8x + 3$$

The answers follow on the next page ...

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Raindrop 2c: Exercise

2c(i) Express $5x^2 - 8x + 3$ in the form $a(x + p)^2 + q$ where a , p and q are constants to be determined.

Answer: $5x^2 - 8x + 3 \equiv 5\left(x - \frac{4}{5}\right)^2 - \frac{1}{5}$

So, $a = 5$, $p = -\frac{4}{5}$ and $q = -\frac{1}{5}$.

2c(ii) Using the result from part (i), find the coordinates of the turning point of the parabola:

$$y = 5x^2 - 8x + 3$$

Answer: The coordinates of the turning point are $\left\{\frac{4}{5}, -\frac{1}{5}\right\}$

This turning point is a minimum.