

27th December



Corbettmaths

The curve $y = x^2 + 3x - 10$ is reflected in the x-axis.

Write down the equation of the reflected curve.

$$y = -x^2 - 3x + 10$$

Show that $x^4 + 2x^3 + 3x + 6 = 0$ has a solution in the interval $(-1.6, -1.4)$

when $x = -1.6$
 $x^4 + 2x^3 + 3x + 6 = -0.438$
 when $x = -1.4$ $\Rightarrow 0.1536$

Since there is a change of sign there is a root/solution between $(-1.6, -1.4)$

$(x + a)^2(x - 2) = x^3 + bx^2 + 12x - 72$
Find a and b

$(x^2 + 2ax + a^2)(x - 2)$
 $x^3 - 2x^2 + 2ax^2 - 4ax + a^2x - 2a^2$

~~xxxxxxx~~
~~xxxxxxxxxxxxxxxxxxxxxxxx~~
 $a = 6$
 $b = 10$

Sketch the graph of

$$f(x) = x^2 - 2x + 10$$

showing the coordinates of the turning points and the coordinates of any intercepts with the coordinate axes.

~~(1,9)~~ $a = 1 \quad b = -2 \quad c = 10$
 $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
 $x = \frac{2 \pm \sqrt{4 - (4 \times 1 \times 10)}}{2}$

$x = \frac{2 \pm \sqrt{-36}}{2}$ no solutions
 $(x-1)^2 - 1 + 10$
 $(x-1)^2 + 9$ min at $(1, 9)$

