Pearson
Edexcel

Finding roots using functions

A LEVEL LINKS
Scheme of work: 1b. Quadratic functions – factorising, solving, graphs and the discriminants

Practice question

1

$$f(x) = x^2 - 8x - 29 \equiv (x - a)^2 + b,$$

where a and b are constants.

(a) the value of a and the value of b.

(b) Hence, or otherwise, show that the roots of $f(x) = 0$ are $c \pm d\sqrt{5}$,

where c and d are integers to be found.

Answer

1 (a) $f(x) = x^2 - 8x - 29 \equiv (x - 4)^2 - 45$

` (b) $4 \pm 3\sqrt{5}$