

STEP Exercises - Quadratics & Polynomials (1 page; 9/9/18)

(1) For what value of x does $(x + 2)(x + 4)$ have its minimum value?

(2) Consider the quadratic equation $x^2 + bx + c = 0$

(i) By experimenting with different examples, find conditions on b and/or c for the roots of the equation to exist and be of the same sign.

(ii) Find conditions for the roots to exist and both be positive

(3) (i) Factorise (a) $x^3 - y^3$ (b) $x^3 + y^3$

(ii) Can $3^{54} - 2^{54}$ be prime?

(4) Factorise $2x^3 - 33x^2 - 6x + 11$