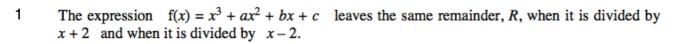
## Remainder/factor Theorem



- (i) Evaluate b. [2]
- f(x) also leaves the same remainder, R, when divided by x-1.

f(x) leaves a remainder of 4 when divided by x-3.

- (b) Solve the equation  $x^3 + 3x^2 = 2$ , giving your answers to 2 decimal places where necessary. [5]
- 2 (a) The remainder when the expression  $x^3 11x^2 + kx 30$  is divided by x 1 is 4 times the remainder when this expression is divided by x 2. Find the value of the constant k. [4]
  - (b) Solve the equation  $x^3 4x^2 8x + 8 = 0$ , expressing non-integer solutions in the form  $a \pm \sqrt{b}$ , where a and b are integers. [5]
- 3 Solve the equation  $x^2(2x+3) = 17x 12$ . [6]
- A function f is such that  $f(x) = ax^3 + bx^2 + 3x + 4$ . When f(x) is divided by x 1, the remainder is 3. When f(x) is divided by 2x + 1, the remainder is 6. Find the value of a and of b. [5]
- Given that  $f(x) = 2x^3 7x^2 + 7ax + 16$  is divisible by x a, find

(i) the value of the constant 
$$a$$
, [2]

- (ii) the remainder when f(x) is divided by 2x + 1. [2]
- 6 Solve the equation  $3x(x^2 + 6) = 8 17x^2$ . [6]