

**Question 3****(5 marks)**

Consider  $f(z) = z^3 + 2z^2 - 5z + 12$  where  $z$  is a complex number.

(a) Show that  $(z + 4)$  is a factor of  $f(z)$ .

**(2 marks)**

(b) Solve the equation  $z^3 + 2z^2 - 5z + 12 = 0$ .

**(3 marks)**