Question 3 (7 marks)

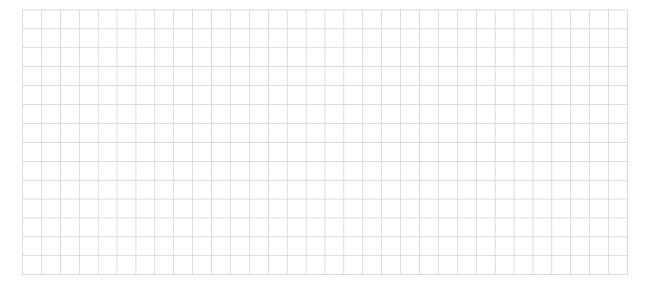
Let $P(x) = x^n + 5x^2 + cx - 1$, where n is a positive integer and c is a real constant.

(a) If (x+1) is a factor of P(x), show that c is equal to either 3 or 5.



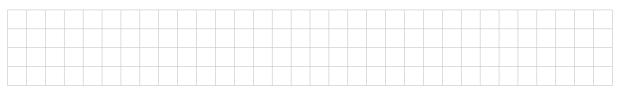
(3 marks)

(b) When P(x) is divided by (x-2), the remainder is 57. Show that there is only one possible value of n.



(3 marks)

(c) Hence state the polynomial P(x).



(1 mark)