8 (a) Verify that $x = -2$ is a solution to the equation

$$\sum_{r=1}^{r=3} (x^r + r) = 0$$

[2 marks]

8 (b) Prove that the equation

$$\sum_{r=1}^{r=3} (x^r + r) = 0$$

has exactly one real solution.

[6 marks]