2 The polynomial p is such that $p(x) = 2x^3 + ax^2 + 13x + b$, where a and b are integers.
It is given that $x + 2$ is a factor of $p(x)$.
When $p(x)$ is divided by $x + 1$ there is a remainder of 6.

(a) Find the values of a and b. [4]

(b) Show that the equation $p(x) = 0$ has only one real root. [3]

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3 The sum of the first two terms of a geometric progression is 9.
The sum to infinity of this geometric progression is 25.

(a) Find the possible values of the common ratio of this geometric progression. [4]

(b) Find the first term of this geometric progression for each possible value of the common ratio. [2]