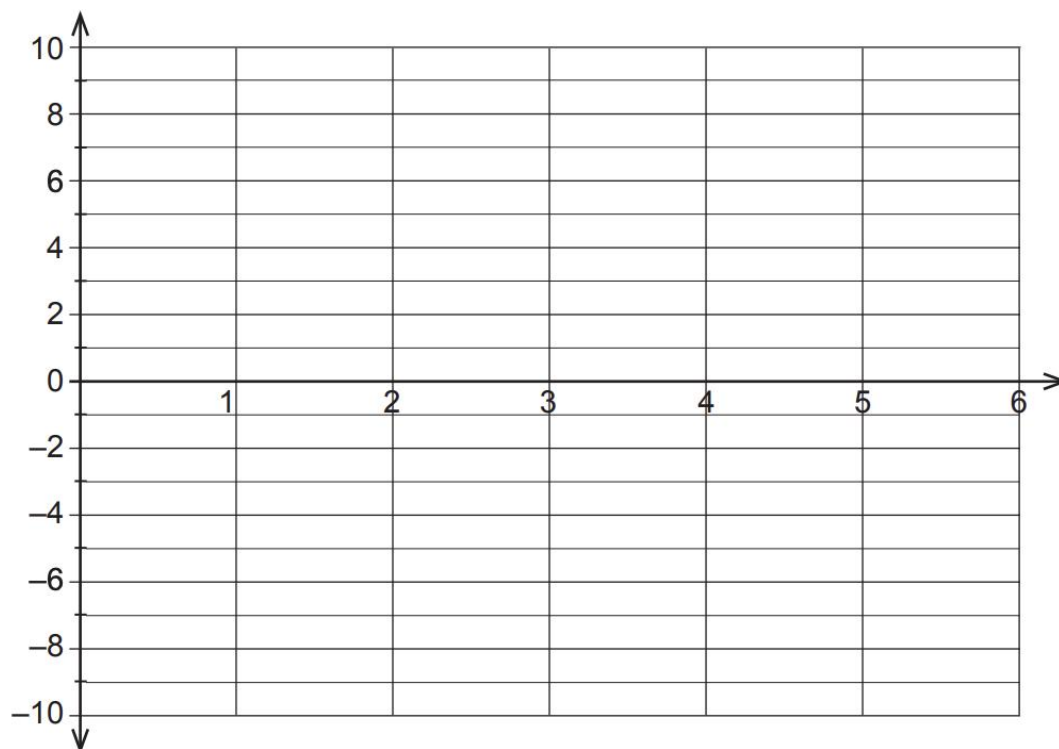


**Question 1****(8 marks)**

Consider the following recurrence relation:

$$T_{n+1} = T_n - 3, \quad T_3 = 2.$$

- (a) Display the first six terms of this sequence on the axes below. Label the axes clearly.

**(3 marks)**

- (b) (i) Deduce a rule for the  $n^{\text{th}}$  term of this sequence.

**(2 marks)**

- (ii) Hence, determine the first term in the sequence which is less than  $-500$ .

**(3 marks)**