

**Regents problems: Sequences and series**

1. A tree farm initially has 150 trees. Each year, 20% of the trees are cut down and 80 seedlings are planted. Which recursive formula models the number of trees,  $a_n$ , after  $n$  years?
  - (a)  $a_1 = 150$   
 $a_n = a_{n-1}(0.2) + 80$
  - (b)  $a_1 = 150$   
 $a_n = a_{n-1}(0.8) + 80$
  - (c)  $a_n = 150(0.2)^n + 80$
  - (d)  $a_n = 150(0.8)^n + 80$
  
2. The sum of the first 20 terms of the series  $2 - 6 + 18 - 54 + \dots$  is
  - (a)  $-610$
  - (b)  $-59$
  - (c)  $1,743,392,200$
  - (d)  $2,324,522,934$