17. Aaron has to choose a three-digit code for his bike lock. The digits can be chosen from 1 to 9. To help him remember them, Aaron chooses three different digits in increasing order, for example 278. How many such codes can be chosen?

A 779   B 504   C 168   D 84   E 9

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17. **D** One way to count the possible codes is in descending numerical order of the three-digit codes. The list begins: 789; 689, 679, 678; 589, 579, 578, 569, 568, 567; ... . Each initial digit n produces part of the list with the $(8 - n)$th triangular number of possible codes, where $n \leqslant 7$. The total number of possible codes is then the sum of these triangular numbers
$1 + 3 + 6 + 10 + 15 + 21 + 28$ including 1 code starting with the digit 7, all the way to 28 codes starting with the digit 1. The total number of codes that Aaron can choose is 84.