

45 The number of logs in the stack is given by $7 + 8 + 9 + 10 + 11 + 12 + 13 + 14 + 15$. This series is arithmetic with first term $a_1 = 7$ and last term $a_9 = 15$ so its sum is given by

$$S_9 = 9 \left(\frac{7 + 15}{2} \right) = 99.$$