

$$\begin{aligned}
 1 \quad \sum_{i=1}^6 (n^2 + 10) &= (1^2 + 10) + (2^2 + 10) + (3^2 + 10) + (4^2 + 10) \\
 &\quad + (5^2 + 10) + (6^2 + 10) \\
 &= 11 + 14 + 19 + 26 + 35 + 46 \\
 &= \underline{\underline{151}}
 \end{aligned}$$

$$\begin{aligned}
 2 \quad \sum_{i=1}^8 i^3 &= 1^3 + 2^3 + 3^3 + 4^3 + 5^3 + 6^3 + 7^3 + 8^3 \\
 &= 1 + 8 + 27 + 64 + 125 + 216 + 343 \\
 &\quad + 512 = \underline{\underline{1.296}}
 \end{aligned}$$

$$\begin{aligned}
 3 \quad \sum_{k=1}^4 (k^2 + 3k) &= (1^2 + 3 \cdot 1) + (2^2 + 3 \cdot 2) + (3^2 + 3 \cdot 3) \\
 &\quad + (4^2 + 3 \cdot 4) \\
 &= (4) + (10) + (18) + (28) \\
 &= \underline{\underline{60}}
 \end{aligned}$$

$$\begin{aligned}
 4 \quad \sum_{k=3}^8 k(k^2 + 5k) &= 3(3^2 + 5 \cdot 3) + 4(4^2 + 5 \cdot 4) \\
 &\quad + 5(5^2 + 5 \cdot 5) + 6(6^2 + 5 \cdot 6) \\
 &\quad + 7(7^2 + 5 \cdot 7) + 8(8^2 + 5 \cdot 8) \\
 &= 3(24) + 4(36) + 5(50) + 6(66) \\
 &\quad + 7(84) + 8(104) \\
 &= 72 + 144 + 250 + 396 + 588 \\
 &\quad + 832 \\
 &= \underline{\underline{2.282}}
 \end{aligned}$$