

$$\begin{aligned}
 V_k^n &= \frac{n!}{(n-k)! * k!} \\
 V_6^{20} &= \frac{20!}{(20-6)! * 6!} \\
 &= \frac{20!}{14! * 6!} \\
 &= \frac{20 * 19 * 18 * 17 * 16 * 15 * 14!}{6 * 5 * 4 * 3 * 2 * 1 * 14!} \\
 &= \frac{20 * 19 * 18 * 17 * 16 * 15 * \cancel{14!}^1}{6 * 5 * 4 * 3 * 2 * 1 * \cancel{14!}^1} \\
 V_6^{20} &= 38760
 \end{aligned}$$