$$V_k^n = \frac{n!}{(n-k)! * k!}$$

$$V_6^{20} = \frac{20!}{(20-6)! * 6!}$$

$$= \frac{20!}{14! * 6!}$$

$$= \frac{20 * 19 * 18 * 17 * 16 * 15 * 14!}{6 * 5 * 4 * 3 * 2 * 1 * 14!}$$

$$= \frac{20 * 19 * 18 * 17 * 16 * 15 * \cancel{14!}}{6 * 5 * 4 * 3 * 2 * 1 * \cancel{14!}^{1}}$$

$$V_6^{20} = 38760$$