LaTeX notation template

S520

Permutations and combinations

$$P(n,r) = \frac{n!}{(n-r)!}$$
$$C(n,r) = \frac{n!}{r!(n-r)!}$$

You can also use bracket notation for combinations:

$$\binom{n}{r} = \frac{n!}{r!(n-r)!}$$

Piecewise functions

$$f(x) = \begin{cases} 0.2 & 0 \le x < 3 \\ 0.1 & 3 \le x < 7 \\ 0 & \text{otherwise} \end{cases}$$

Probabilities

I just write $P(X \le a)$, $P(X < a)$, $P(X \ge a)$, $P(X > a)$, $P(a < X < b)$.

Expectation and variance

Expected value of discrete X:
$$E(X) \equiv EX = \sum_x x \cdot f(x).$$

Expected value of X^2:
$$E(X^2) = \sum_x x^2 \cdot f(x).$$