

Definition 0.0.1 (characteristic function, mgf).

- The **characteristic function** of a r.v. X is given by $\Phi_X(t) = \mathbb{E}[e^{itX}]$.

- The **moment generating function** of a r.v. X is given by $M_X(t) = \mathbb{E}[e^{tX}]$.