

$$\psi_x(t) = E[e^{tx}]$$

$$E[X^n] = \frac{\partial}{\partial t^n} \psi_x(t) \Big|_{t=0}$$

$$E[X^n] = \int_{\mathbb{R}} x^n p_x(x) dx \quad (\text{c.s.a.c.})$$

$$= \sum_{x \in \mathbb{A}} x^n p_x(x) dx \quad (\text{r.a.n.d.})$$

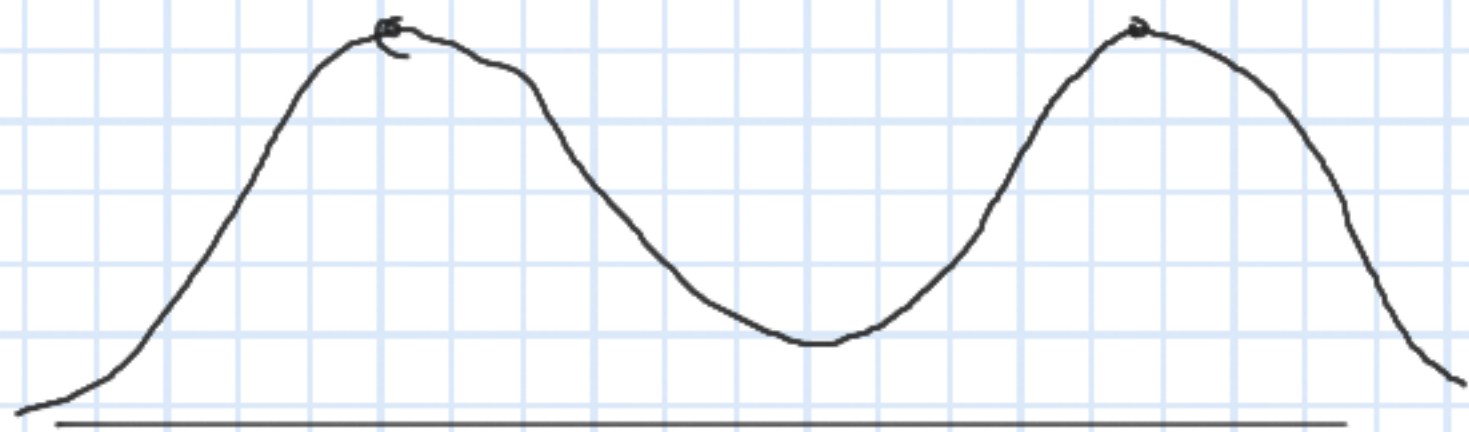
$$\rho = \frac{\text{Corr}(X, Y)}{\sqrt{\text{Var}(X) \text{Var}(Y)}}$$

$$-1 \leq \rho \leq 1$$

1 0 1

1 1 1

1



$$\underline{x} = [\textcircled{1}, 5, 3, 6, \textcircled{1}, 4, \textcircled{1}, 5, 3, 4, 6]$$

median > moda \rightarrow Skew \oplus
modia < moda \rightarrow Skew \ominus

$$\underline{x} = [1, 2, 3, 3, 4, 5, 5, 5, 6]$$

Q_1, Q_2, Q_3

$$Q_1 = 2, 5 \quad Q_2 = 4 \quad Q_3 = 5$$

$$\underline{x} = [1, 2, 3, 3, 4, 5, 5, 6]$$

$$Q_1 = 2, 5 \quad Q_2 = 3, 5 \quad Q_3 = 5$$