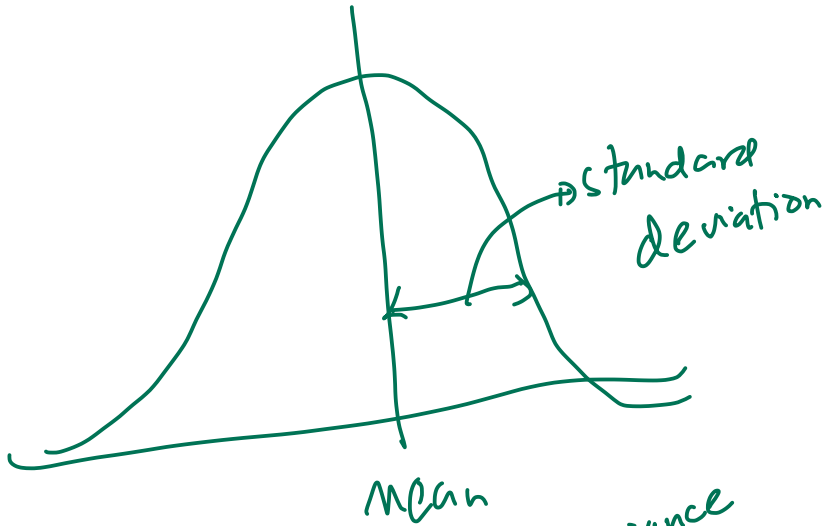


DAY 10

6:48 pm

Dec 11

## Variance



$$\mu = \frac{1}{N} \sum X_i$$

variance

$$\sigma^2 = \frac{1}{N} \sum (X_i - \mu)^2$$

$$\sigma = \sqrt{\sigma^2}$$

↑  
standard deviation

$$34567$$

$$N = 5$$

$$\sum x_i = 25$$

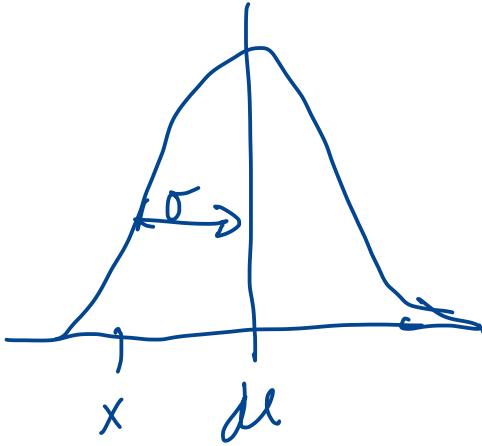
$$\sum x_i^2 = 135$$

$$\mu = \frac{1}{N} \sum x_i = \frac{25}{5} = 5$$

$$\begin{aligned}\sigma^2 &= \frac{1}{N} \sum x_i^2 - \frac{1}{N^2} (\sum x_i)^2 \\ &= \frac{1}{5} (135) - \frac{1}{25} (25)^2\end{aligned}$$

$$\sigma^2 = 2$$

# STANDARD SCORE



$$z = \frac{x - \mu}{\sigma}$$

$$\mu = 5 \quad \sigma = 1.414$$

2, [ 3 4 5 7 6 ]

i  
x →  $z = \frac{2 - 5}{1.414} = -2.12$