

Standard Normal distribution

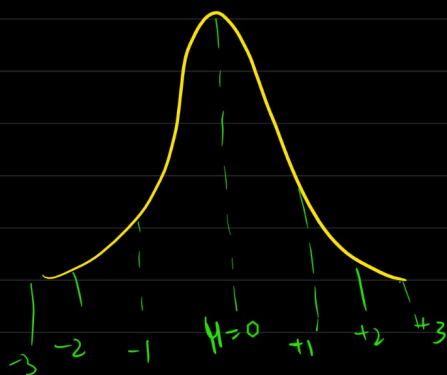


mean - μ } Can be any value
std - σ }

$$pdf = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{1}{2}\left(\frac{x-\mu}{\sigma}\right)^2}$$

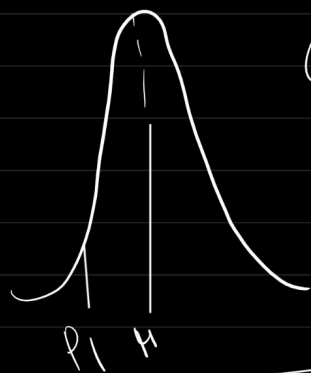
→ S.N.D. is continuous prob distribution

→ A special case of N.D. → $\mu=0, \sigma=1$



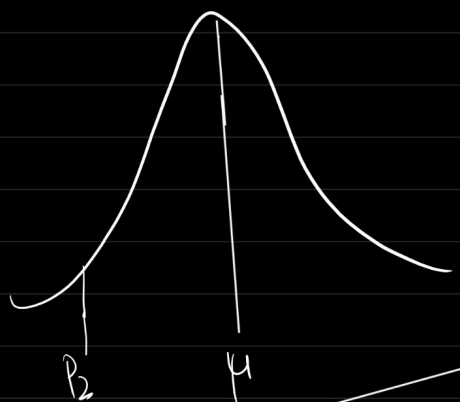
why S.N.D. if we already have N.D?

D₁



Can I say P₁
is closer to μ
as compared
to P₂

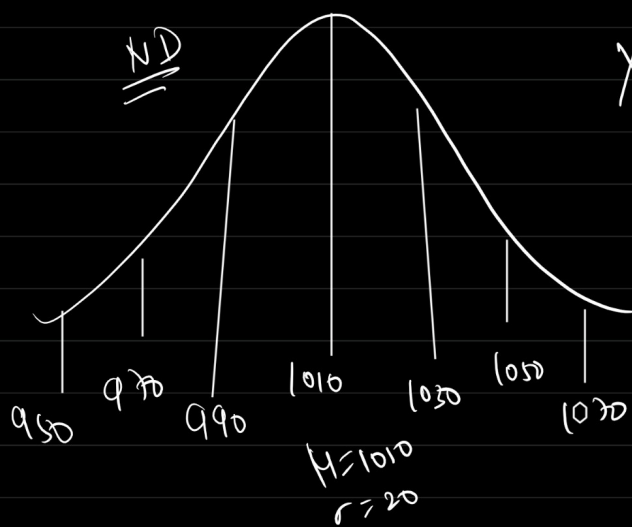
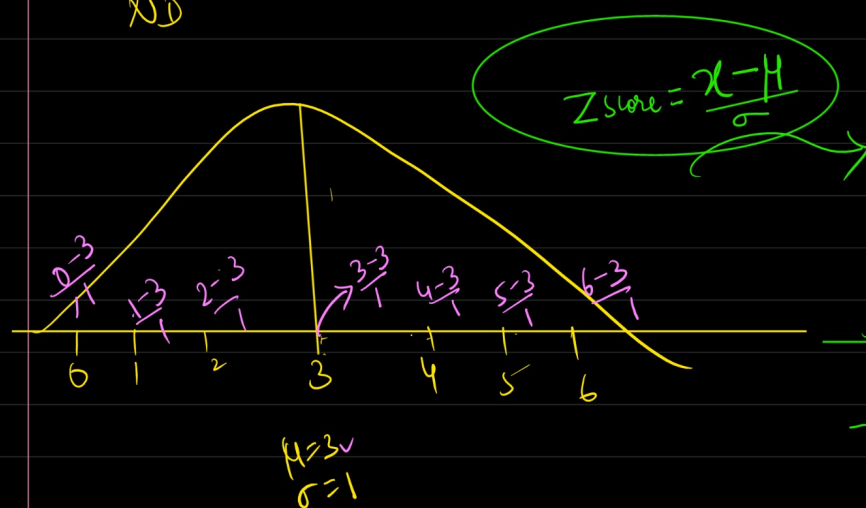
D₂



On the same scale $\mu \neq \sigma$

N-D \longrightarrow Standard N-D

N-D

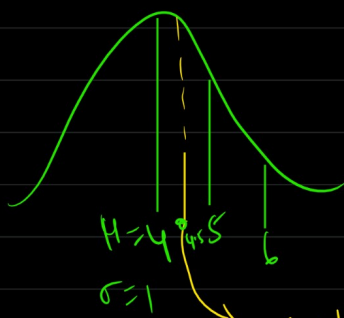


$X \approx \text{SND} (\mu=0, \sigma=1)$

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

x	$x - \mu$	$\frac{x - \mu}{\sigma}$
950	$950 - 1010 = -60$	$\frac{-60}{20} = -3$
970	$970 - 1010 = -40$	$\frac{-40}{20} = -2$
990	$990 - 1010 = -20$	$\frac{-20}{20} = -1$
1010	$1010 - 1010 = 0$	$\frac{0}{20} = 0$
1030	$1030 - 1010 = 20$	$\frac{20}{20} = 1$
1050	$1050 - 1010 = 40$	$\frac{40}{20} = 2$
1070	$1070 - 1010 = 60$	$\frac{60}{20} = 3$

Q



How many standard deviation 4.5 is away from mean?

$$Z_{score} = \frac{x - \mu}{\sigma} = \frac{4.5 - 4}{1} = 0.5$$

0.5 standard away from mean

Q11

↓ No of rooms	↓ Area of House (sq ft)	locality	distance from airport	Y (Price of house) (in lakhs)
1	1100	1	20 km	70
2	1200	2	30 km	80
3	1150	3	15 km	90
4	1250	1	60 km	110
5	1300	1	70 km	120
-	-	2	-	-
-	-	-	-	-
-	-	-	-	-

Linear Reg
logistic Reg
clustering

→ Standardization

$$\rightarrow Z_{score} = \frac{x - \mu}{\sigma}$$

$$= \frac{x_i - \text{Area of house}}{\sigma}$$