

1-7

## Lesson ~~1-7~~ → Introduction to Standard Deviation

Standard deviation measures **variability**

standard deviation is a better version of **MAD**

"standard deviation is like Mean Absolute deviation PLUS or 2 point 0"

MAD → average of distances from mean

S.D. → adds step of squaring then square rooting

steps: ① find mean

② find distance from mean for each data point

③ square each of those distances

④ add up values and divide by number of data points to get average squared difference

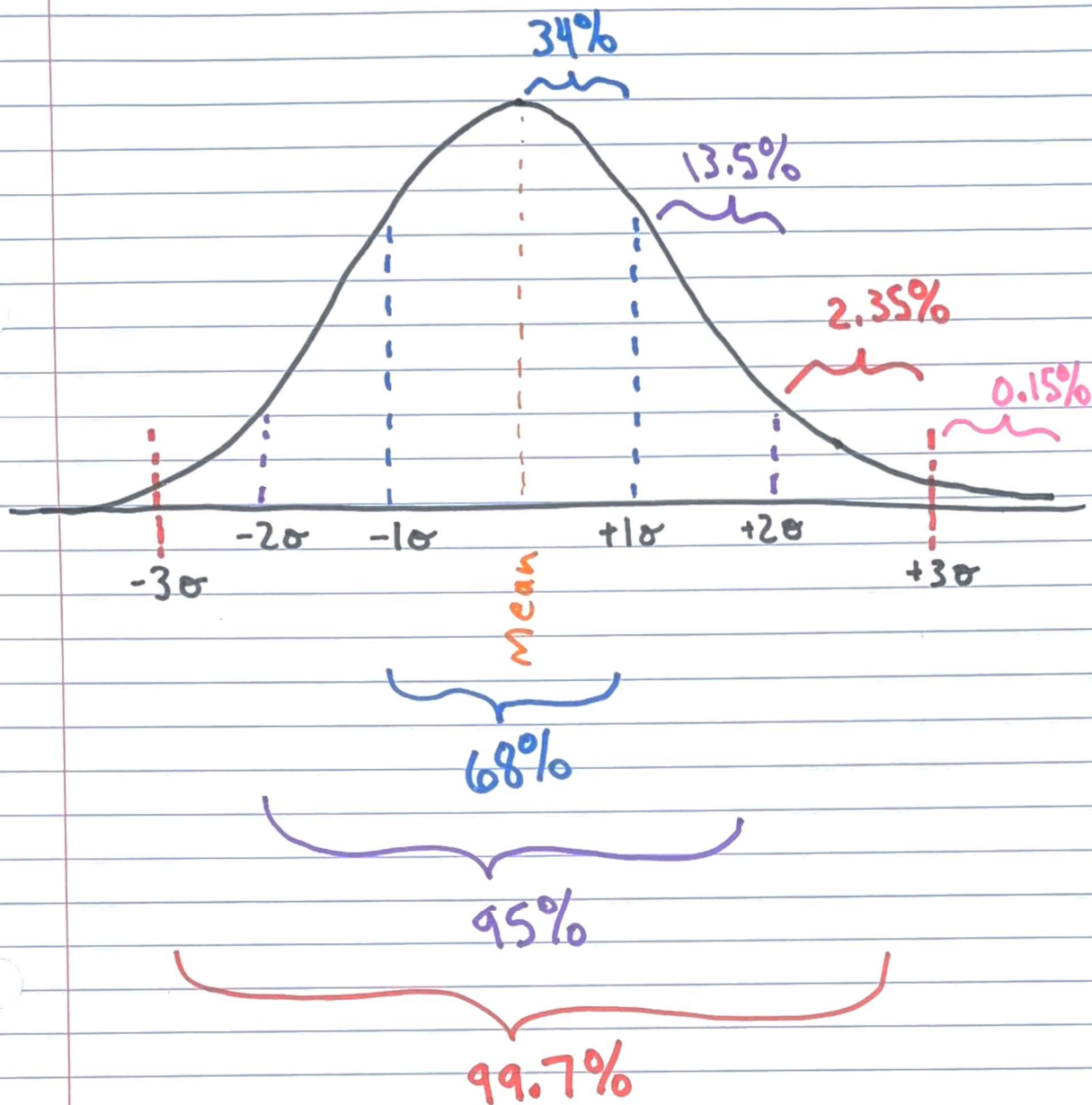
⑤ get square root of that average

S.D. is more sensitive to outliers than MAD

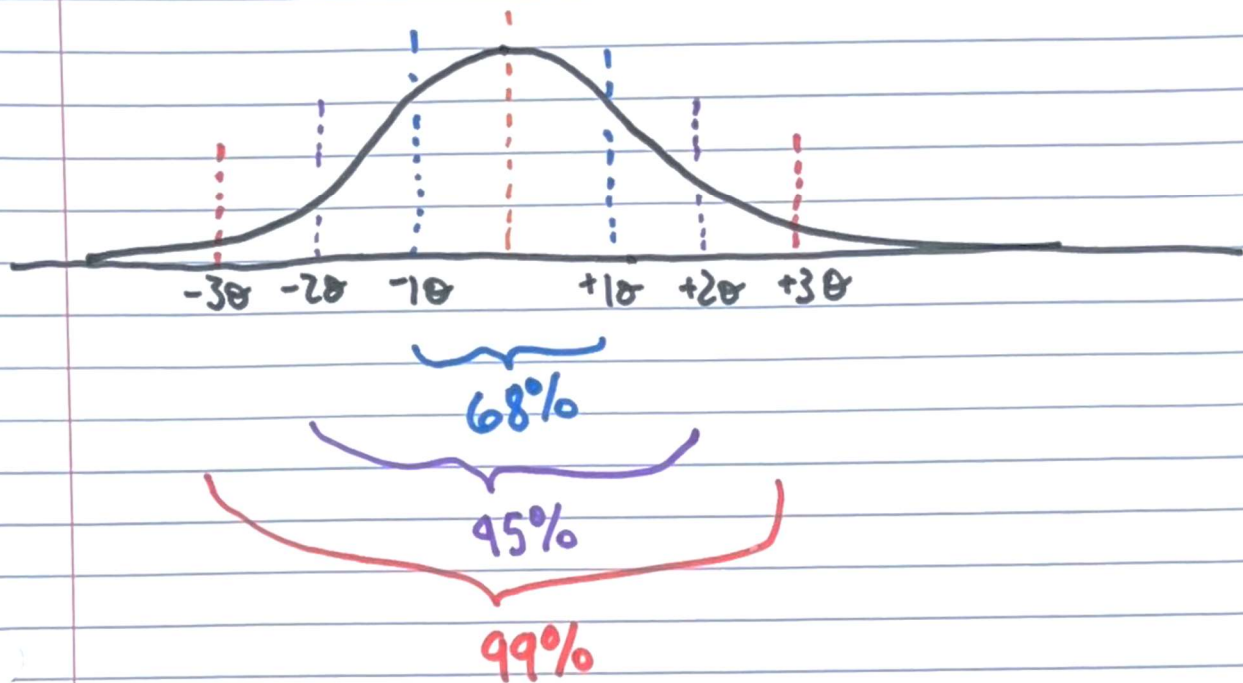
# The 68-95-99 Rule

People love SD because it works well with bell-shaped distributions

new symbol, standard deviation equals  $\sigma$



What does it all mean??? 68-95-99???



A college basketball team has this data

$$\begin{aligned}\text{Mean} &= 30 \\ \text{s.d.} &= 7\end{aligned}$$

68% of time they score between 23 and 37

95% of time they score between 16 and 44

99% of time they score between 9 and 51

That's what ~~the~~ "normal distribution" predicts!