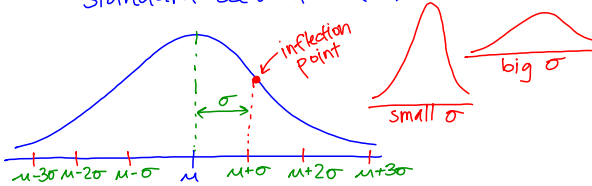


2.2 Normal Curves

- density curves that are symmetrical, unimodal, and bell-shaped.
- described by giving mean (μ) and standard deviation (σ)

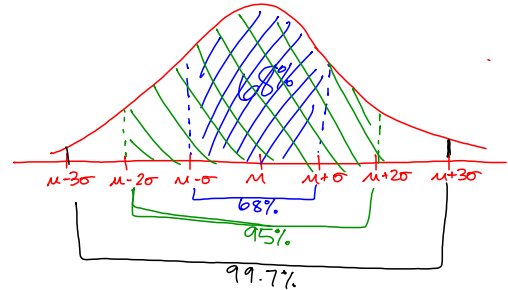


$$N(\mu, \sigma)$$

ex: $N(17, 3)$ means we have a normal curve with $\mu=17$ and $\sigma=3$

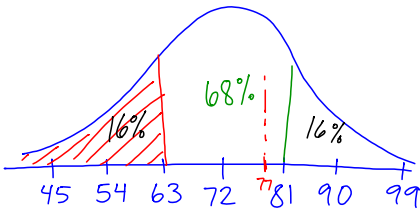
68-95-99.7 Rule (only for Normal Curves)

- 68% of observations fall within 1σ of μ .
- 95% of " " " " 2σ of μ .
- 99.7% of " " " " 3σ of μ .



ex: Pulse Rates

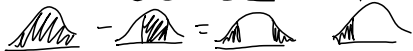
$N(72, 9)$ beats per minute



① between what 2 numbers does 95% of data lie?
54-90

② 63 beats/min is what %ile?

$$100\% - 68 = 32 \div 2 \rightarrow 16\%$$



③ What % of people have a pulse rate less than 77?

$$z = \frac{77-72}{9} = \frac{5}{9} = 0.56$$

↓
Table A \rightarrow 71.2%

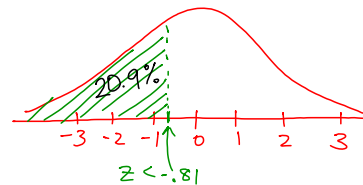
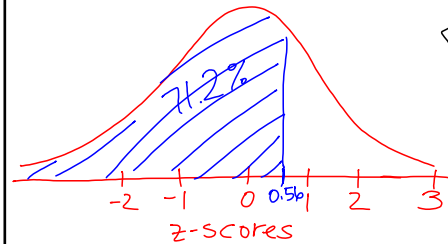
Standard Normal Distribution

$$\mu = 0$$

$$\sigma = 1$$

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

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



ex: Find the proportion of observations less than
 $z = -0.81$.2090
 20.9%

on calc:

2nd → ^{Distr}Vars → 2: normalcdf

(lower bound, upper bound, μ , σ)

use table A or calc.