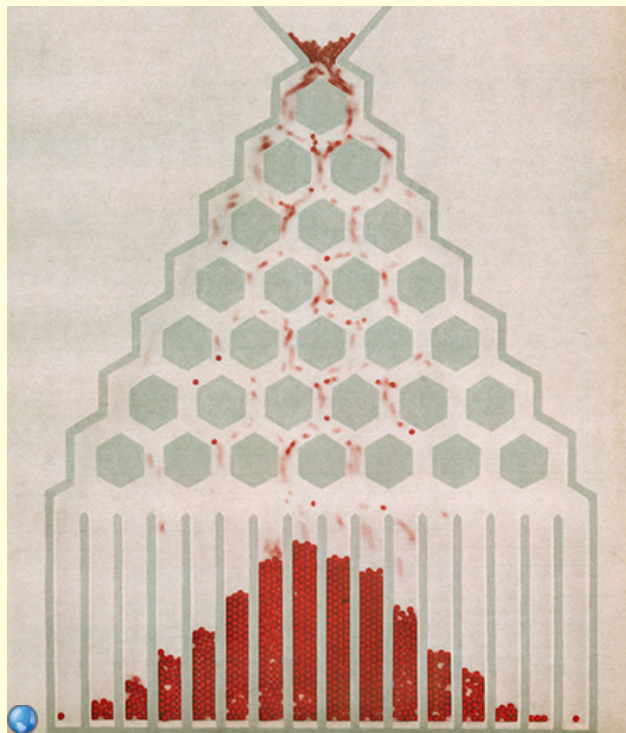
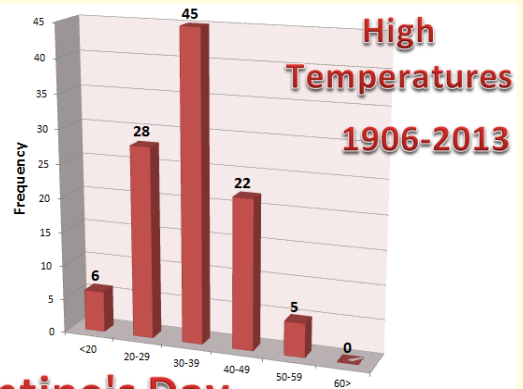
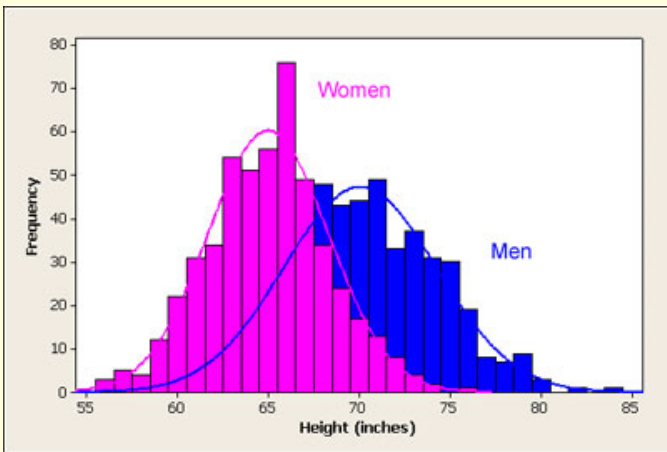


5.1 The Normal Distribution

The Normal Distribution

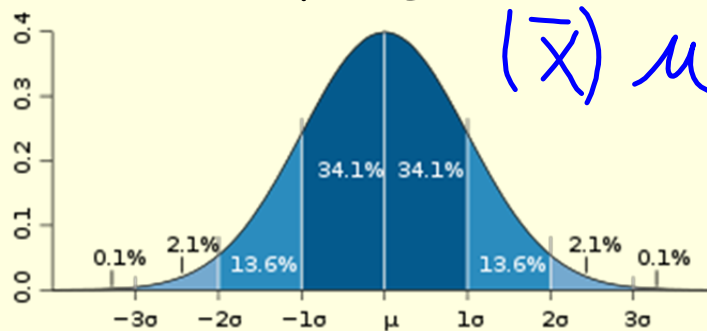


The Normal Distribution



Valentine's Day

The Normal Distribution



$(\bar{x}) \mu = \text{mean}$

σ

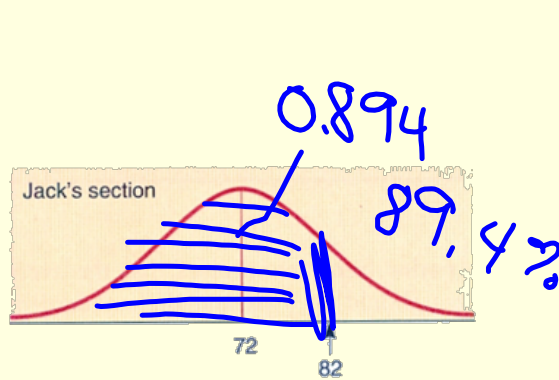
Characteristics of the normal distribution:

- bell shape, highest pt over μ
- Symmetrical.
- Mean = Median = Mode
- 68.2% data: $\mu \pm 1\sigma$
- 95.4% data: $\mu \pm 2\sigma$
- 99.7% data: $\mu \pm 3\sigma$

The Normal Distribution

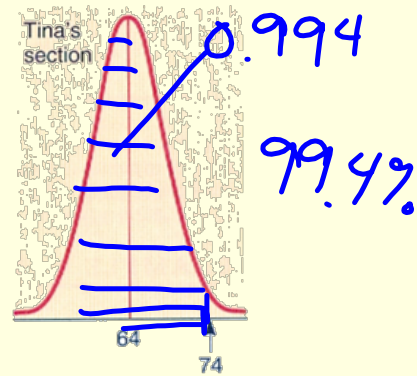
When we're looking at very different sets of data, sometimes it's hard to make a comparison. Who did better in their section: Jack or Tina?

Distributions of Midterm Scores



Jack: $\mu = 72$
 $\sigma = 8$

$$\frac{10}{8} = 1.25 \text{ sd.}$$



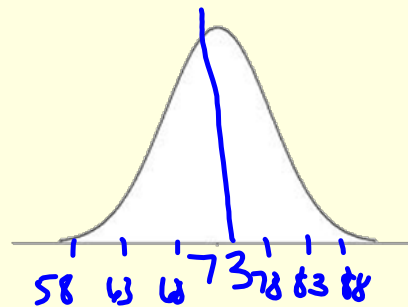
Tina: $\mu = 64$
 $\sigma = 4$

$$\frac{10}{4} = 2.5 \text{ sd.}$$

The Normal Distribution

1. Data collected over a period of years shows that the average daily temperature in Honolulu is 73°F with a standard deviation of 5°F .

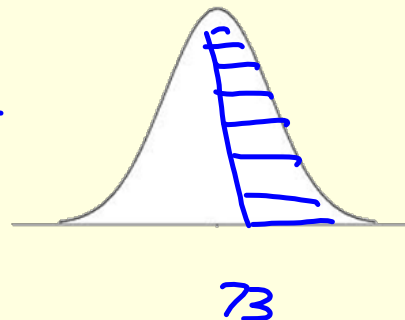
- a) Label the normal distribution diagram to illustrate this information.



- b) Find the probabilities for each daily temperature in Honolulu. Label and shade each normal distribution diagram

- i) more than 73°F

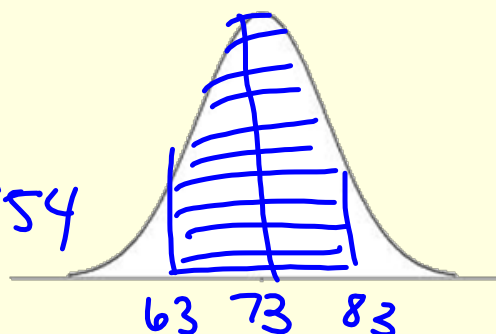
$$P(>73) = 0.5$$



The Normal Distribution

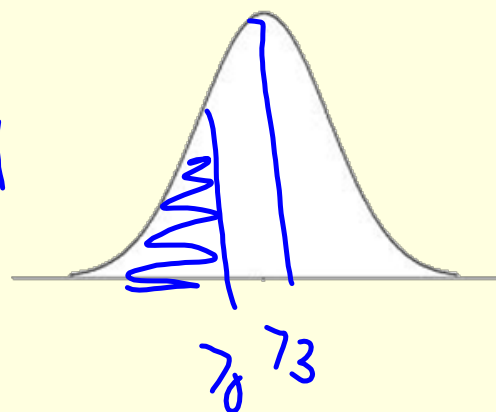
ii) between 63°F and 83°F

$$P(63 < x < 83) = 0.954$$



iii) less than 70°F

$$P(x < 70) = 0.274$$



Homework: page 208:2, 4; 210-211:1-8 all