Precalc14.4

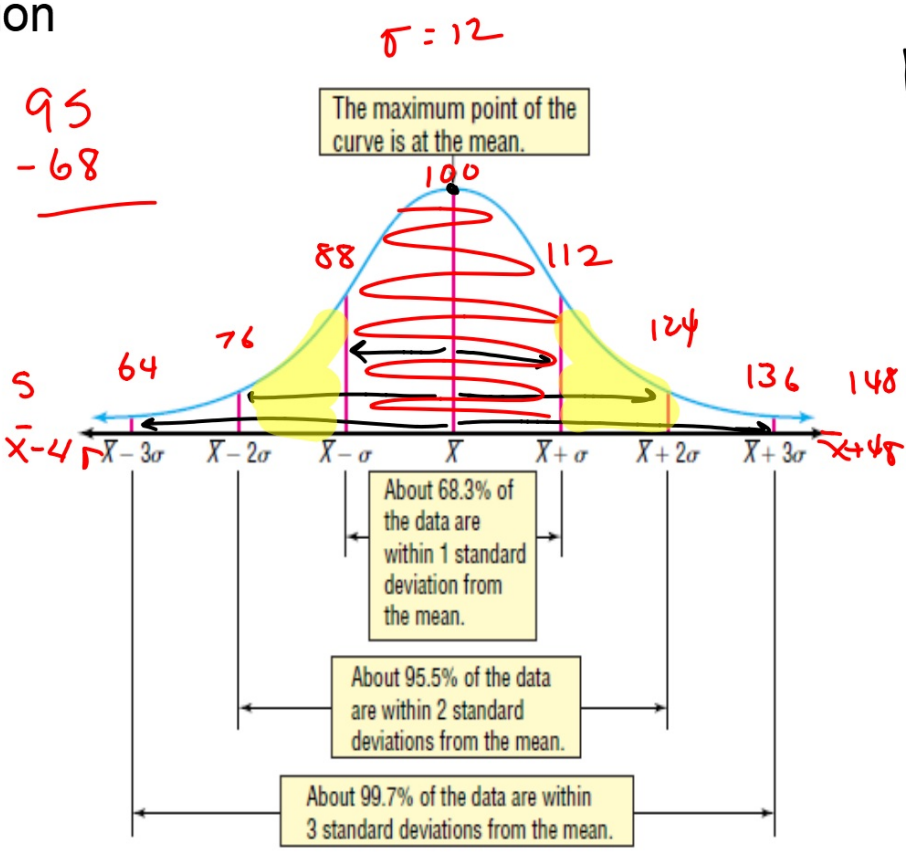
Use the normal distribution curve

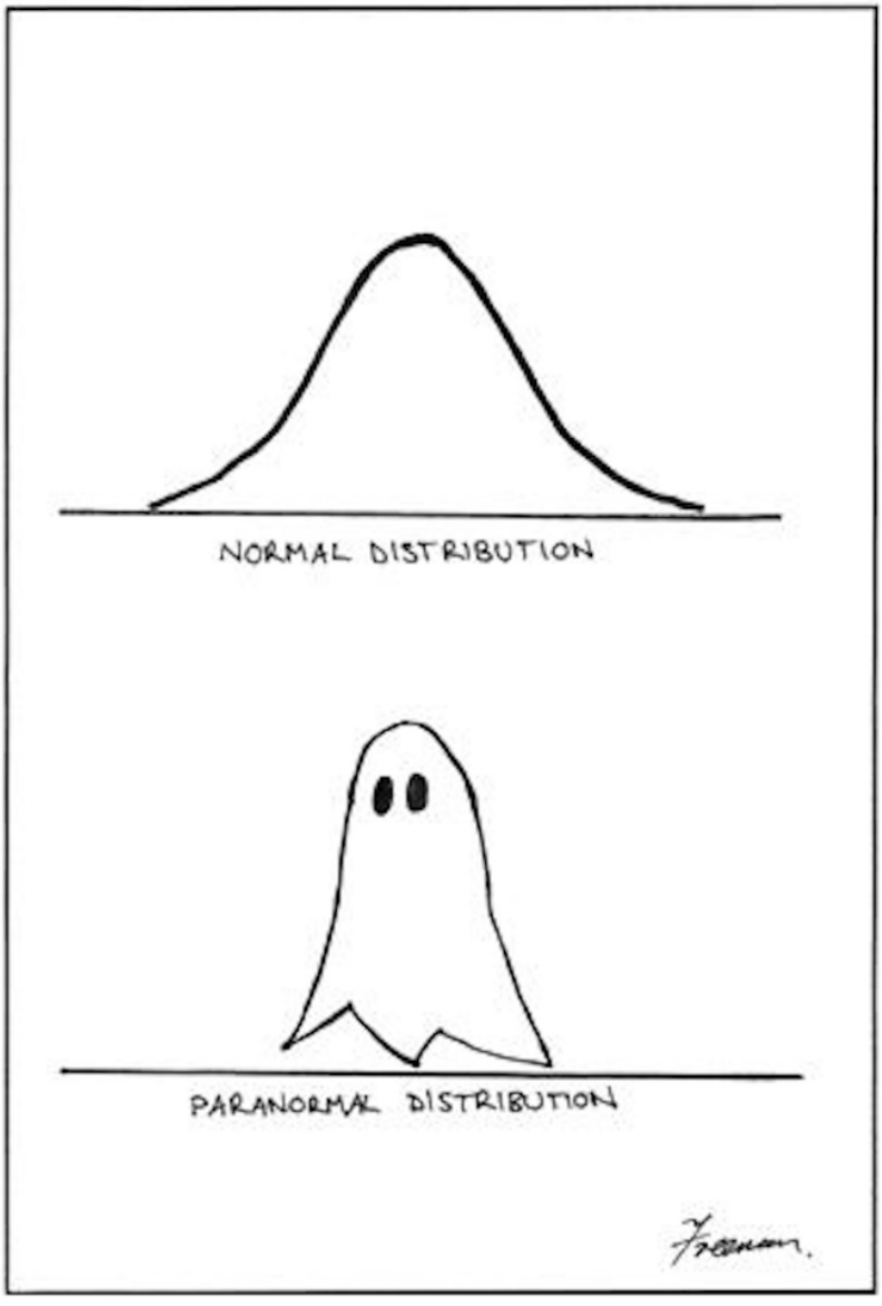
normal curve

standard deviation

68-95-99+

how many sd for 100% (approx)?




NORMAL DISTRIBUTION
PARANORMAL DISTRIBUTION

TESTING The class of 1996 was the first class to take the adjusted Scholastic Assessment Test. The test was adjusted so that the median of the scores for the verbal section and the math section would be 500. For each section, the lowest score is 200 and the highest is 800. Suppose the verbal and math scores follow the *normal distribution*. What percent of the students taking the test would have a math score between 375 and 625? *This problem will be solved in Example 4.*

4sd=100%

max 800

625

med 500

375

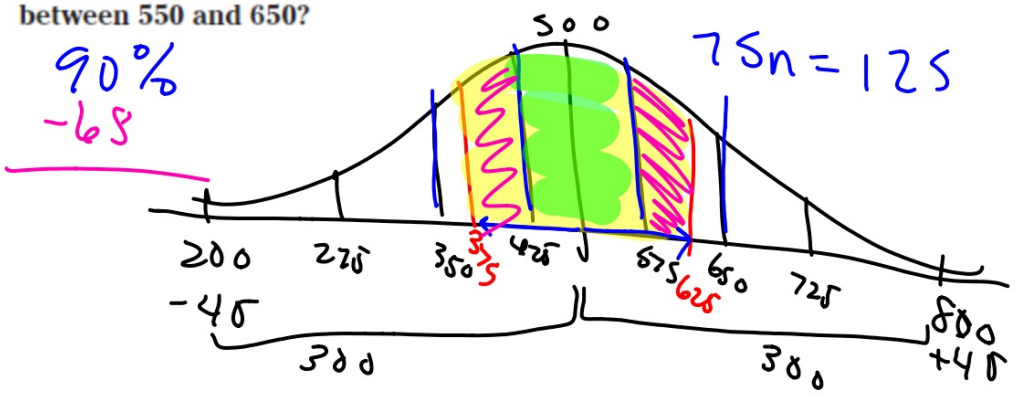
min 200

4 TESTING Refer to the application at the beginning of the lesson.

a. Determine the standard deviation. $\sigma = 75$

b. What percent of the students taking the test would have a math score between 375 and 625? 68-95%

c. What is the probability that a senior chosen at random has a math score between 550 and 650?



90%

-68

$75n = 125$

$1.\overline{6}\,\sigma$

95 - 99 %
2σ 3σ

10-18e

17. Health The lengths of babies born in City Hospital in the last year are normally distributed. The mean length is 20.4 inches, and the standard deviation is 0.8 inch. Trey was 22.3 inches long at birth.

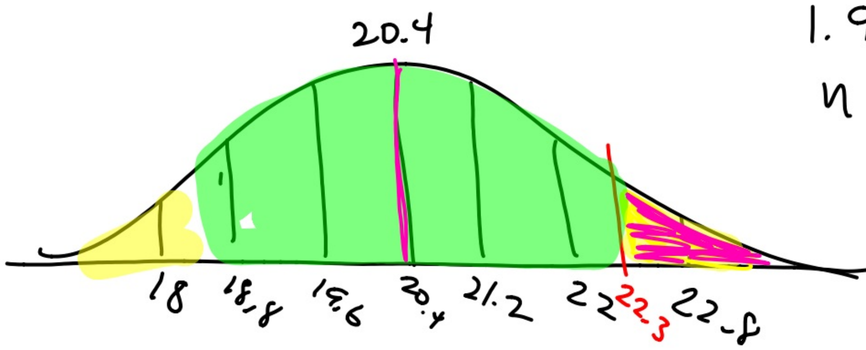
a. What percent of the babies born at City Hospital were longer than Trey? 0.8 %

b. What percent of the babies born at City Hospital were shorter than Trey? 0.992

$1.9 = 0.8n$

$n = 2.375$

98.4



Remember: 2 tails in the data

18. Business The length of time a brand of CD players can be used before needing service is normally distributed. The mean length of time is 61 months, and the standard deviation is 5 months. The manufacturer plans to issue a guarantee that it will replace any CD player that breaks within a certain length of time. If the manufacturer does not want to replace any more than 2% of the CD players, how many months should they limit the guarantee?

What should we print on the package?

Percentile	The nth percentile of a set of data is the value in the set such that n percent of the data is less than or equal to that value.

Therefore if a student scores in the 65th percentile, this means that 65% of the students taking the test scored the same or less than that student.