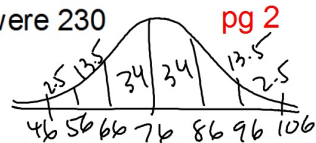Scores on an exam are normally distributed with a mean of 76 and a standard deviation of 10. There were 230 tests taken.

pg 2

1. How many students scored above 96?

2.5% of 230 ⟹ 6 STUDENTS

2. How many students scored below 66?

16% of 230 ⟹ 37 STUDENTS

3. How many students scored between 56 and 86?

81.5% of 230 = 187 STUDENTS

4. You select an exam at random. What is the probability that the score is between 76 and 96? 47.5%

The weights of newborn babies is normally distributed with 68% of the newborns weighing from 6.3 pounds to 6.9 pounds.

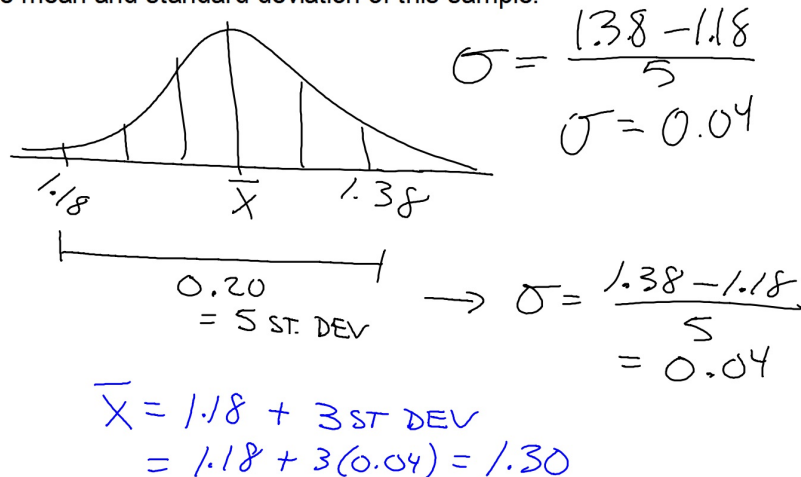Find the mean weight and the standard deviation of these newborns.
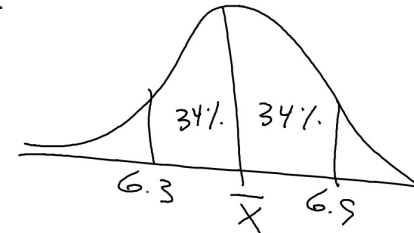
$\overline{X}$ is half way between 6.3 & 6.9

$\overline{X} = \dfrac{6.3 + 6.9}{2} = 6.6$

$\overline{X} + \sigma = 6.9$
$6.6 + \sigma = 6.9$ } $\sigma = 0.3$

The diameters of a sample of Ping-Pong balls shows that the diameter of a ball that is 3 standard deviations below the mean is 1.18 in and the diameter of a ball that is 2 standard deviations above the mean is 1.38 inches.

Find the mean and standard deviation of this sample.

$\sigma = \dfrac{1.38 - 1.18}{5}$

$\sigma = 0.04$

0.20 = 5 ST. DEV

→ $\sigma = \dfrac{1.38 - 1.18}{5} = 0.04$

$\overline{X} = 1.18 + 3\,ST\,DEV$
$= 1.18 + 3(0.04) = 1.30$

A company makes nails and sells them in boxes of 200 nails. The lengths of the nails are normally distributed with a mean of 3 inches and a standard deviation of 0.05 in.
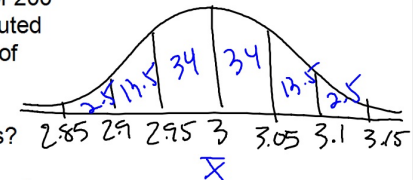
1. What range of lengths contain 95% of the nails? 2.9 to 3.1 in

2. What % of the nails are shorter than 2.95 in long? 16%

3. If you were to grab a random nail what is the probability that you grab one longer than 3.1 in long? 2.5%

4. If you were to grab a random nail what is the probability that you grab one between 2.9 and 3.05 inches long? 81.5%