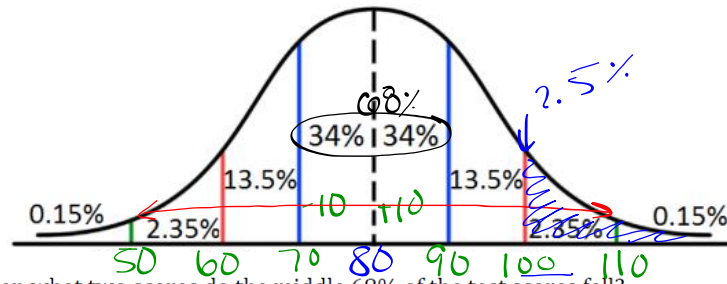


68-95-99.7 Rule Worksheet

Use the 68-95-99.7 rule to sketch, label, and shade normal distribution curves for the following. Show your work.

1. A competency test has scores with a mean (μ) of 80 and a standard deviation (σ) of 10.

a) Sketch the distribution.



b) Between what two scores do the middle 68% of the test scores fall?

70-90

c) Between what two scores do the middle 99.7% of the test scores fall?

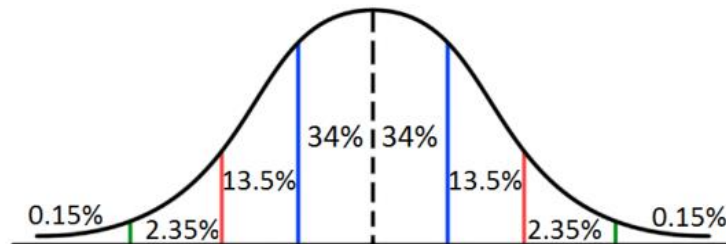
50-110

d) How high must you score to be considered in the top 2.5%?

100 <, above 100

2. The Army reports that the distribution of head circumferences among male soldiers is approximately normal with $\mu = 22.8$ inches and $\sigma = 1.1$ inches.

a) Sketch the distribution.



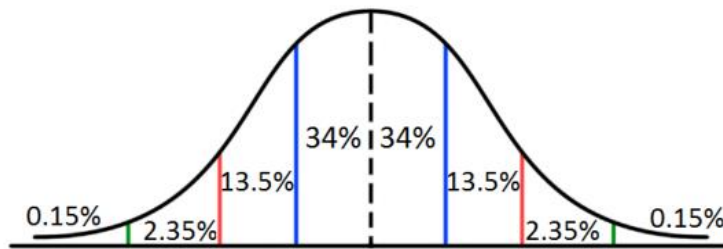
b) What percent of soldiers have head circumference greater than 23.9 inches?

c) What percent of soldiers have head circumferences between 21.7 inches and 23.9 inches?

d) What percent of soldiers have a head circumference less than 26.1 inches?

3. The length of human pregnancies from conception to birth varies according to a distribution that is approximately normal with $\mu = 266$ days and $\sigma = 16$ days.

a) Sketch the distribution.



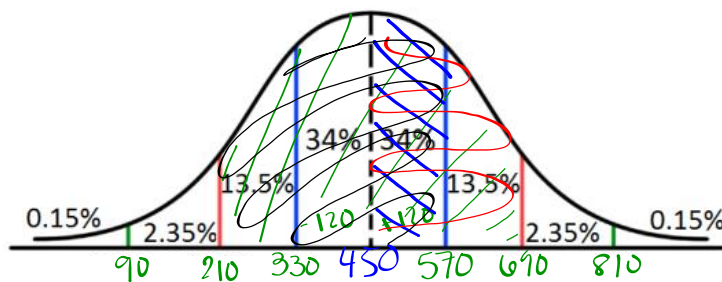
b) Between what values do the lengths of the middle 68% of all pregnancies fall?

c) How short are the shortest 16% of all pregnancies?

d) What percent of pregnancies last between 234 days and 314 days?

4. SAT verbal scores are normally distributed with a mean of 450 and a standard deviation of 120.

a) Sketch the distribution.



b) What percent of the scores lie between 210 and 690?

95%

c) What percent of the scores lie between 450 and 570?

34%

d) What percent of the scores lie between 450 and 690?

$34 + 13.5 = 47.5\%$

e) What percent of the scores lie between 210 and 570?

$13.5 + 34 + 34 = 81.5\%$