

Present Thursday: #3, 6, and 7

9:55 Rachel Web., Jena, Rebekah, Luke, Arie, Kelly Bei.

11:00 Calli Vik., Molly, Tyson, Colin, Janessa, Mykki Bor.

Wednesday's Presenters: (#11)

9:55 Hannah Rot., Chelsea, Molly, Amy, Jared, Briana Tor.

11:00 Victoria Sch., Abbey, Kelly, Jeffrey, Kayla, Kelly Tom.

Homework:

Part A) Redo #3, 6, and 7 from Wednesday's homework using
(i) an 80% confidence interval and
(ii) a 99% confidence interval

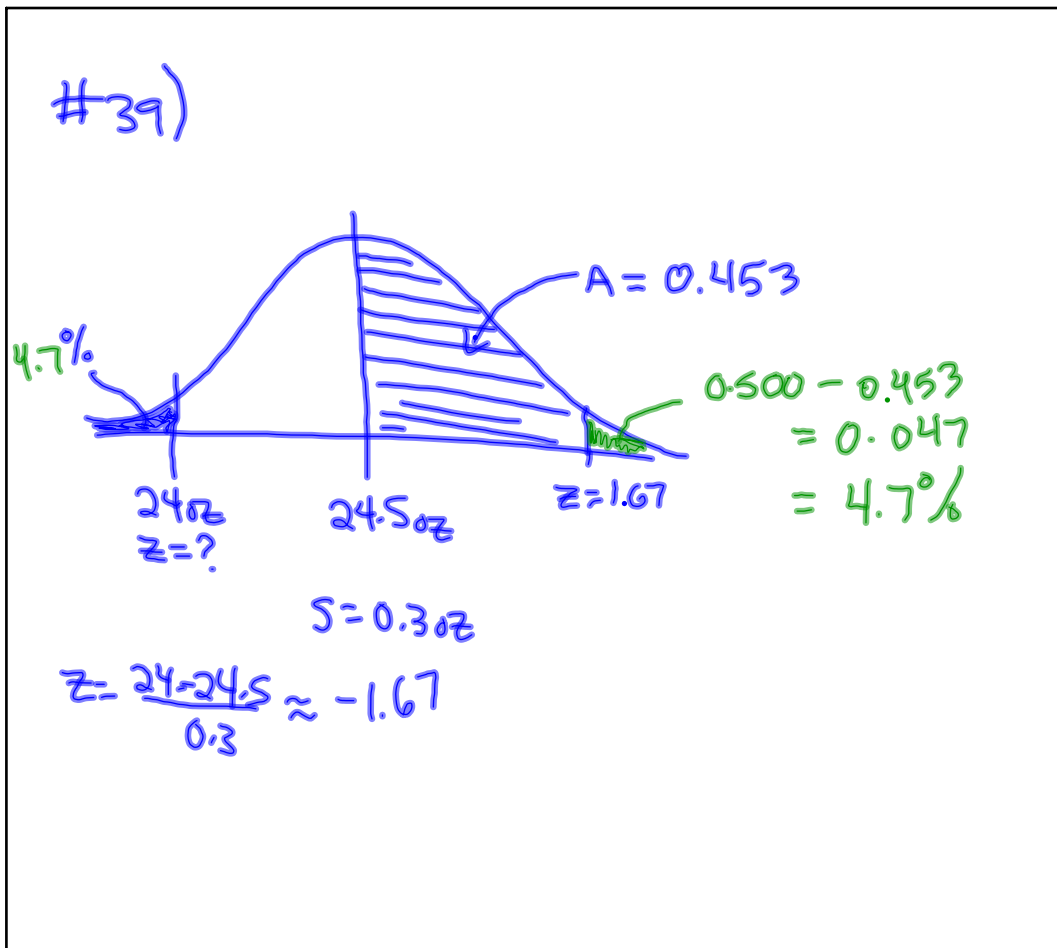
Part B) (from your textbook)

Sec. 13.5 #7-14 all, #19-22 all, 37, 39, 45, 47

Present Monday: A(#7), and B(#39, 45)

9:55 - Leigha B, Lexi, Ashley, Mae, Aspyn, Abby B.

11:00 - Brittany E, Lauren, Katie, Courtney, Sarah, Tyler H.

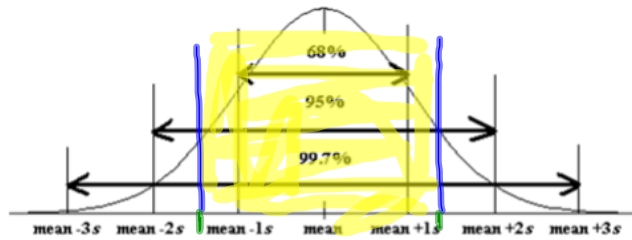


Example: Suppose in a survey of 100 people, 44% intend to vote for a school referendum.

4. What if we are told the standard deviation for the 100 person sample is 0.02, or 2 percentage points. What is the 68% confidence interval?

68% CI.

42% to 46%



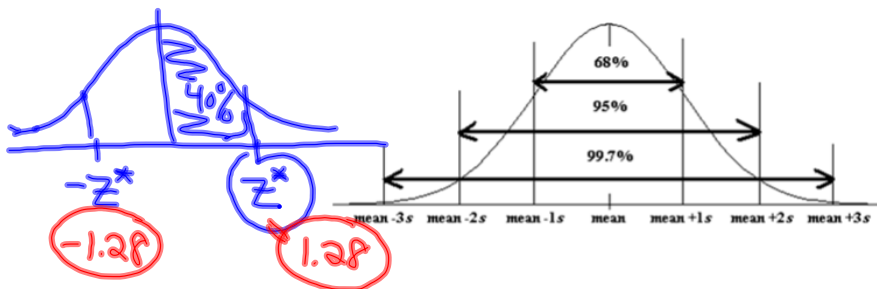
5. What is the 80% confidence interval?

To do this, we must find the z-scores that bound the middle 80% of the dataset. Use Table 10!

Theorem: If a dataset is normally distributed with standard deviation s , and if the sample mean is m , then the $n\%$ confidence interval is found according to:

$$m \pm (z^*)(s),$$

where $n\%$ of the dataset is between $-z^*$ and $+z^*$.



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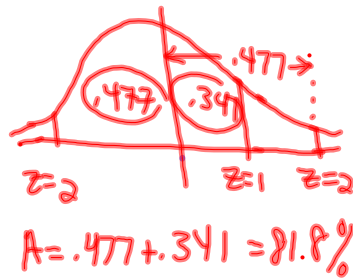
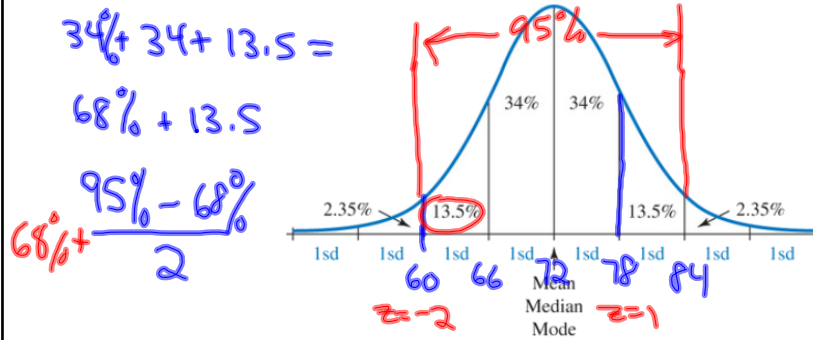
$$44\% - 1.28(2\%) = 41.4\%$$

$$44\% + 1.28(2\%) = 46.6\%$$

More Examples - Empirical Rule:

The final exam scores in biology have a *normal distribution* with a mean of 72 and a standard deviation of 6. (Scores $\sim N(72, 6)$)

b) What percent of all biology students scored between 60 and 78?



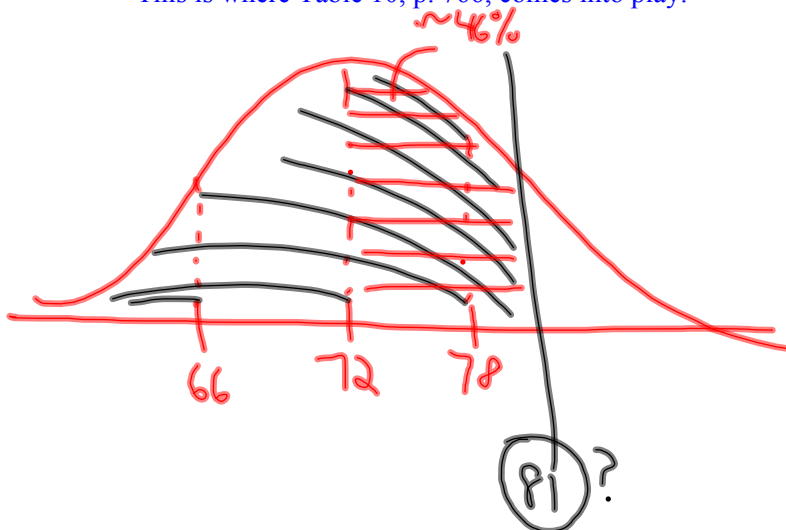
More Examples - Empirical Rule:

The final exam scores are distributed as $\sim N(72, 6)$.

c) What percent of all biology students scored below 81?

* We need more resolution in our normal distribution probabilities!

This is where Table 10, p. 766, comes into play.



$$z = \frac{81 - 72}{6} = \frac{11}{6} \approx 1.9$$

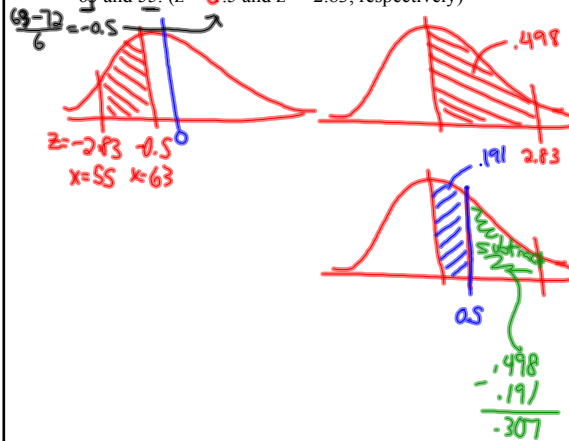
Examples, continued: Use Table 10 to help answer these questions:

d) Estimate the percentage of students who scored above 69 ($z = -0.5$) on the Bio 103 exam.



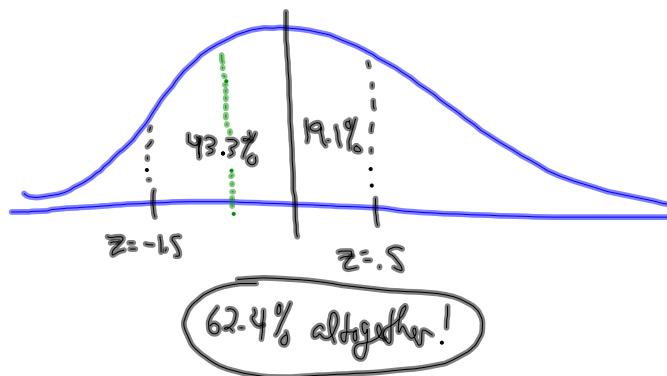
$$A = 19.1\% + 50\% = 69.1\%$$

e) Estimate the percentage of students who scored between 69 and 55. ($z = 0.5$ and $z = -2.83$, respectively)



Examples, continued: Use Table 10 to help answer these questions:

f) ... between 63 and 75? ($z = -1.5$ and $z = +0.5$, respectively)



What about between 63 and 69?

