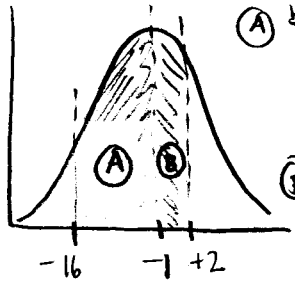
1. **A This is the basic job of randomization**
2. **B Even though everyone underwent surgery, given the nature of the procedure (having an implant put in your face) would make it difficult to not know if you were a treatment rather than a control. Review page 5**
3. **C in this case, it's actually the range, try it.**
4. **A knowing nothing else, the mean and median are very close and the SD "makes sense"**
5. **A**
6. **B**
7. **D**
8. **A (you actually need chapter 14 to do this one, sorry)**
9. **D (1- ($.80^5$)) gives about 67%**
10. **B**
11. **See next page**
12. **See Next Page**
13. **See Next Page**
14. **A**
15. **E (everything will change)**
16. **E (We never talked about C and even if you read about in Chapter 2, there is not enough information in this question to allow you determine if Simpson's paradox is a problem)**
17. **(I)**
18. **because 25 * 4 = 100% and it is properly labeled (II) gives you 125% and (III) is labeled wrong and gives you 125%**
19. **B**
20. **THERE IS A TYPO HERE. Use the information in problem #19 to help you solve this one. Using a Z=.65 gives you 565 for the 75^{th} percentile and using a Z=-.65 gives you 435 for the 25^{th} percentile. The IQR would be 565-435= 130 points.**

The last three questions refer to this statement, but each question is separate (i.e. you can get the first one wrong and that won't affect the others): Corporate securities (or publicly traded stocks) are an investment opportunity for individuals as well as institutions. The 10,000 stocks available for investment to U.S. residents are normally distributed with a mean one-year return of -1% and a standard deviation of 12%. SHOW YOUR WORK FOR FULL CREDIT.

11. What percentage of stocks had one-year returns between -16% and +2%? (5 points)



(A) b/tw -16% and 1%: $Z = \frac{-16-(-1)}{12} = -1.25 \rightarrow 78.87\%$

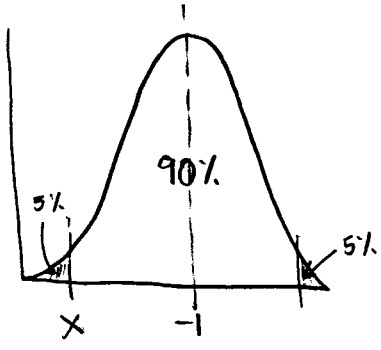
$\frac{78.87}{2} = 39.435\%$

(B) b/tw -1 and +2: $Z = \frac{+2-(-1)}{12} = 0.25 \rightarrow 19.74\%$

$\frac{19.74}{2} = 9.87\%$

$39.435\% + 9.87\% =$ **49.305% of stock**

12. A stock is at 5th percentile (i.e. 5% of the stocks have returns lower than this stock), what is its one-year return? (5 points)



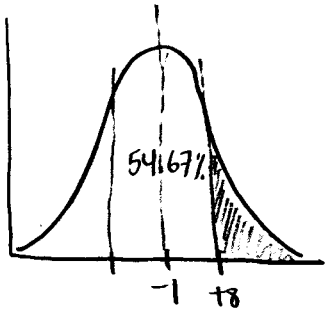
want to find Z-score with area value of ~90%

↳ $Z \cong -1.65$

$-1.65 = \frac{X-(-1)}{12}$

$X =$ **-20.80%**

13. In order to meet your retirement goals, you need to buy stocks that have a return of 8% or more. Approximately how many stocks out of the 10,000 qualify? (5 points)



$Z = \frac{+8-(-1)}{12} = +.75 \xrightarrow{\text{table}} 54.67\%$

Want value of one tail:

$\frac{100-54.67}{2} = 22.665\%$

$(.22665)(10{,}000) = 2266.5 \rightarrow \sim$ **2266 stocks**