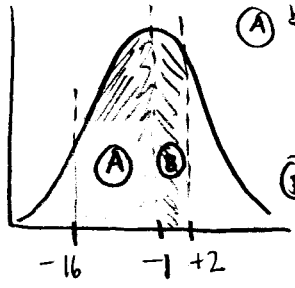
The last three questions refer to this statement, but each question is separate (i.e. you can get the first one wrong and that won't affect the others): Corporate securities (or publicly traded stocks) are an investment opportunity for individuals as well as institutions. The 10,000 stocks available 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%: $Z = \frac{-16-(-1)}{12} = -1.25 \rightarrow 78.87\%$

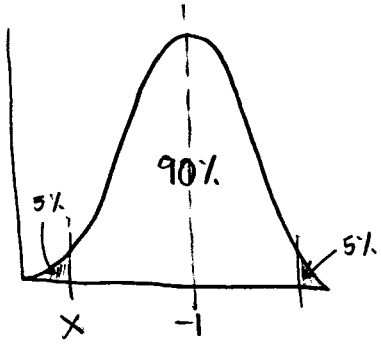
$\frac{78.87}{2} = 39.435\%$

(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)



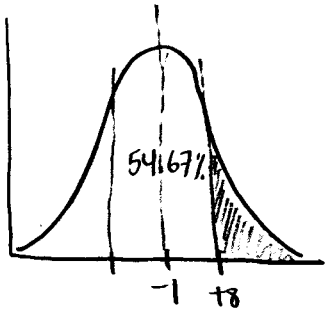
want to find Z-score with area value of ~90%

↳ $Z \cong -1.65$

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

$X =$ **-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**