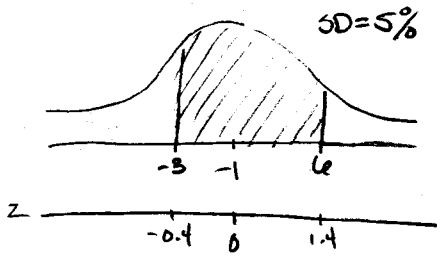
The last three questions refer to this statement, but each question is separate (i.e. you can get the first one wrong and that won't affect the others): Corporate securities (or publicly traded stocks) are an investment opportunity for individuals as well as institutions. The 10,000 stocks available for investment to U.S. residents are normally distributed with a mean one-year return of -1% and a standard deviation of 5%. SHOW YOUR WORK FOR FULL CREDIT.

11. What percentage of stocks had one-year returns between -3% and +6%? (5 points)



$z = \frac{-3-(-1)}{5} = -0.4 \quad z = \frac{6-(-1)}{5} = 1.4$

-0.4 to 0.4 area = 31.08%

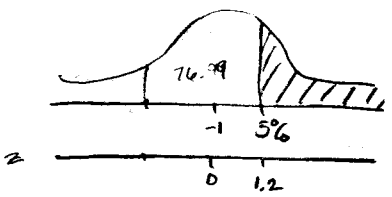
-0.4 to 0 = 15.54%

-1.4 to 1.4 area = 83.85

0 to 1.4 = 41.925%

Total area = 15.54 + 41.925 = 57.465%

✱ 12. In order to meet your retirement goals, you need to buy stocks that have a return of 5% or more. Approximately how many stocks qualify? (5 points)



$z = \frac{5\% - (-1\%)}{5\%} = 1.2$

area of -1.2 → 1.2 = 76.99%

100% - 76.99% = 23.01% =>

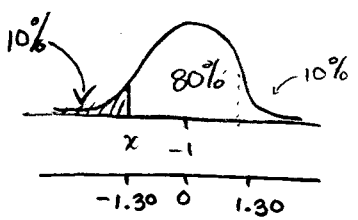
I only want half, therefore

$\frac{23.01\%}{2} = 11.505\%$ qualify

11.505% out of 10,000

1150.5 stocks qualify

13. A stock is at 10th percentile (i.e. 10% of the stocks have returns lower than this stock), what is its one-year return? (5 points)



$z = -1.30$

$-1.30 = \frac{x-(-1)}{5\%} \Rightarrow x = -7.5\%$