

Instructions: Show all work to receive full credit. You should note any formulas used or calculator functions used, their inputs and outputs. I cannot grade work if I don't know where an answer came from. Be sure complete all parts of each questions, including requests for interpretation and explanations. Be as thorough as possible.

1. Solve for x in $z = \frac{x-\mu}{\sigma}$.

$$z \cdot \sigma = \frac{x-\mu}{\cancel{\sigma}} \cdot \cancel{\sigma}$$

$$z\sigma = x - \mu$$

$$+ \mu \quad + \mu$$

$$\boxed{\mu + z\sigma = x}$$

2. Solve $5x - 9 \leq 16$. Write the solution a) on a number line, b) in interval notation.

$$\frac{5x}{5} \leq \frac{25}{5}$$

$$x \leq 5$$



$$(-\infty, 5]$$

3. You have \$100,000 in retirement savings, and you want to invest it in three different investment vehicles. You have decided to invest \$20,000 in stocks, but want to invest three times as much money in money in government bonds as in treasury bills. If the total interest earned on your savings portfolio is \$6000, how much money is invested in government bonds and in treasury bills?

$$20,000(.10) + 3x(.055) + x(.035) = 6000$$

$$\begin{array}{r} 2000 + .165x + .035x = 6000 \\ -2000 \quad \quad \quad -2000 \\ \hline \end{array}$$

$$\frac{.2x}{.2} = \frac{4000}{.2}$$

$$x = 20,000 \quad 3x = 60,000$$

stocks: 20,000, bonds: 60,000, bills: 20,000