## Practice Computational Problems

1.  New employees take a different version of a performance exam than the previous employees took.  The new exam is more difficult than the previous one.  The mean score of the new exam is 66 with a standard deviation of 7.
    a.  Calculate the new mean and the new standard deviation after adding 15 points to each score.
    b.  Calculate the new mean and the new standard deviation after dividing each score in the old distribution (not the distribution from part a) by 4.

2.  A researcher working for a golf ball manufacturer, tests the distance the new super-duper golf balls can travel.   The mean distance is 185 feet with a standard deviation of 12.31 feet.  Calculate the new mean and the new standard deviation after making the following changes:

    a.  Multiple each score in the old distribution by 5.
    b.  Subtract 12 feet from each score.

3.  A local school district wants to compare the math scores of several of their students to the state scores.  The mean and standard deviation of the local school district scores are as follows:   $\bar{X} = 74$, $S = 5.45$.  Convert the following math scores to z scores.

| Student | Math Score | z score |
|---|---|---|
| Jessie | 82 | |
| Lucinda | 85 | |
| Marquette | 79 | |
| Frank | 66 | |
| Jerome | 75 | |
| Misty | 72 | |

4. Given that the mean response time is 45.3 milliseconds (ms) with a standard deviation of 13.1, convert the following response times to z scores.

| Participant | Response Time | z score |
|---|---|---|
| A | 61.5 ms | |
| B | 28.4 ms | |
| C | 32.8 ms | |
| D | 47.7 ms | |

5. The following stress scores were collected from players on a professional basketball team. The mean stress score is 128 with a standard deviation of 12. Convert the following stress scores to z scores.

| Player 1 | Player 2 | Player 3 | Player 4 | Player 5 | Player 6 | Player 7 | Player 8 |
|---|---|---|---|---|---|---|---|
| 145 | 122 | 139 | 156 | 119 | 133 | 141 | 110 |