# QUIZ 6

For a normal population with mean $\mu$ and standard deviation $\sigma$ we expect

| Between | Percentage of Data |
|---------|--------------------|
| $\mu - \sigma$ and $\mu + \sigma$ | 68.26% |
| $\mu - 2\sigma$ and $\mu + 2\sigma$ | 95.44% |
| $\mu - 3\sigma$ and $\mu + 3\sigma$ | 99.74% |

1. Assume a coin is tossed $n = 400$ times. Let $x$ be the discrete random variable counting how many tails you get. Approximate the following probabilities.

   (a) $P(180 \leq x \leq 220)$

   (b) $P(190 \leq x \leq 210)$

   (c) $P(x \geq 230)$

   (d) $P(200 \leq x \leq 220)$

   (e) $P(190 \leq x \leq 230)$

2. At a city high school, past records indicate that the MSAT scores for students have a mean of 510 and a standard deviation of 90. Exactly 81 students in the high school are to take the test. What is the probability that their mean score will be

   (a) More than 510?

   (b) Less than 530?

   (c) Between 500 and 510?