



Problem 1 – Finding the Area between Two Given Scores

Test scores are normally distributed with a mean of 76 and a standard deviation of 7.

Use the graph on pages 1.3 and 1.7 to make an estimate for each proportion. Then check your estimate using the **Integral** tool and **normCdf** command.

	Proportion of scores < 80	Proportion of scores < 60
Estimate		
Actual		

- What is the proportion of scores that fall between 60 and 80?

- Use this value in a sentence involving probability.

Problem 2 – Finding the Area Greater than a Given Value

The weights of game tokens are normally distributed with a mean of 4.85 grams and a standard deviation of 0.08 gram.

- How can you use the **normal Cdf** command to find the probability that a randomly selected token has a weight *greater* than 4.9 grams?

- Find the probability.

- Estimate the probability that a randomly selected token weighs more than 4.75 grams. Then find the probability.



Problem 3 – Using the Standard Normal Distribution

- What is the mean and standard deviation of a standard normal distribution?

The z-score of a standard normal distribution gives how many standard deviations a given

value, x , is from the mean: $z = \frac{x - \mu}{\sigma}$.

- The scores on an IQ test are normally distributed with a mean of 100 and a standard deviation of 15. What is the z-score of a test score of 88?
- What is the probability that a randomly selected test taker has a score below 88?
- A student has a z-score of 2.8 for the IQ test. What was their test score?
- What is the probability that a randomly selected test taker has a z-score below 2.8?
- What is the probability that a randomly selected test taker has a z-score between -1.5 and 2.3 ?
- In what range of test scores does the probability found in 3.7 correspond to?