Math 10 - Exercises for Lecture 6

1. Suppose you have a Normal Distribution Value Generator$^{\text{TM}}$ that produces independent numbers from a standard normal distribution.

Suppose you generate 1 million numbers using this generator and call them group A. Suppose you generate another 1 million numbers using this generator and call them group B.

What is the probability that group A and group B will have a number in common?

Sample Exam Question on The Normal Distribution

The scores of a class of $10,000$ students are approximately normally distributed with mean 50 and standard deviation 10.

Hint: you can do this entire question using just the 68-95-99.7 rule, and I recommend you do.

2. Approximately how many students scored between 40 and 60 inclusive? (1 pt)

3. Approximately how many students scored between 50 and 70 inclusive? (2 pts)

4. Approximately how many students, in total, scored ≥ 70 or scored ≤ 20? (4 pts)

Answers
1) Merge both groups. The probability of any collision in this merged group is zero since the distribution is continuous.
2) 6800
3) 4750
4) $250 + 15 = 265$