

Homework Solutions

Chapter 8 – Page 551

Exercise 19

- (a) Let X be the score of a randomly selected first-year student. Then $P(1200 < X < 1400) = \text{normalcdf}(1200, 1400, 1250, 150) = 0.4719$.
- (b) The sample mean has a normal distribution with mean 1250 and standard deviation $\frac{150}{\sqrt{36}} = 25$, so $P(1200 < \bar{X} < 1400) = \text{normalcdf}(1200, 1400, 1250, 25) = 0.9972$.
- (c) With the sample size of 36, the means are clustered much more closely to the mean of 1250. Therefore, there is a much higher probability that a value will be within the range (1200, 1400). Below is a diagram showing the two distributions.

