7.3-1: Sample Means

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49. $\mu_{\bar{x}} = \mu = 225$ seconds.

Because the sample size (10) is less than 10% of the population of songs on David's ipod,

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}} = \frac{60}{\sqrt{10}} = 18.974 \text{ seconds}$$

51. $30 = \frac{60}{\sqrt{n}}$

Solving for n... n = 4 songs.

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53. a. Normal with $\mu_{\bar{x}} = 188$ mg/dl

Because the sample size (100) is less than 10% of all men age 20 to 34,

$$\sigma x = \frac{41}{\sqrt{100}} = 4.1 \text{ mg/dl}$$

b. there is a 0.5357 probability that $\bar{x}$ estimates μ within +/- 3 mg/dl

c. There is a .9790 probability that $\bar{x}$ estimates μ within +/- 3 mg/dl