

### Answer on Question #51308 – Math – Statistics and Probability

Business Week conducted a survey of graduates from 30 top MBA programs in the country. On the basis of the survey, assume that the (population) mean annual salary for male and female graduates 10 years after graduation is \$168,000 and \$117,000, respectively. Assume that the standard deviation for male graduates is  $\sigma_{male} = \$40,000$ , and for the female graduates it is  $\sigma_{female} = \$25,000$ .

1. For a random sample of 64 female graduates, find the standard deviation of the sampling distribution of the sample mean.
2. For a random sample of 100 male graduates, find the standard deviation of the sampling distribution of the sample mean.

#### Solution

1. In a random sample of  $n_{female} = 64$  female graduates, the standard deviation of the sampling distribution of the sample mean is

$$\sigma_{M,female} = \frac{\sigma_{female}}{\sqrt{n_{female}}} = \frac{\$25,000}{\sqrt{64}} = \$3,125.$$

2. In a random sample of  $n_{male} = 100$  male graduates, the standard deviation of the sampling distribution of the sample mean is

$$\sigma_{M,male} = \frac{\sigma_{male}}{\sqrt{n_{male}}} = \frac{\$40,000}{\sqrt{100}} = \$4,000.$$

**Answer: 1. \$3,125; 2. \$4,000.**