

Week 4 Polling (~15 minutes)

A distribution of all possible sample means that could be obtained in samples of a given size from the same population is called a:

Normal distribution

Sampling distribution

Binomial distribution

Skewed distribution

The standard error of the mean is (select all that apply):

The standard deviation for a sampling distribution of the mean

Equal to the mean divided by the square root of the sample size

A measure of the distance that sample means deviate from the population mean over repeated sampling

A researcher selects a sample of 25 participants from a population with a standard deviation equal to 5. What is the standard error of the mean for the sampling distribution?

0.2

$$se = \frac{\sigma}{\sqrt{n}} = \frac{5}{\sqrt{25}} = 1$$

1

5

25

Researcher A selects a sample of 20 participants. Research B selects a sample of 30 participants. If both samples were selected from the same population, then which researcher selected a sample associated with a larger standard error?

Researcher A

Researcher B

Impossible to determine with the information given

A researcher selects a sample of 25 participants from a population with a mean of 20 and a standard deviation of 10. What is the range of values for the sample mean that fall within 1 standard error of the mean in a sampling distribution?

$$se = \frac{\sigma}{\sqrt{n}} = \frac{10}{\sqrt{25}} = 2$$

$$20 \pm 2$$

$$18 \text{ to } 22$$

16 to 24

21 to 29

18 to 22

18.5 to 21.5

A researcher selects a sample of nine participants from a population with a mean equal to 10 and a standard deviation equal to 3. What is the z-score for selecting a sample mean equal to 7 from this population?

+3.00

-3.00

+1.00

-1.00

$$Z = \frac{x - M}{\sigma/\sqrt{n}}$$
$$= \frac{7 - 10}{3/\sqrt{9}} = \frac{-3}{1} = -3$$

A researcher selects a sample of nine participants from a population with a mean equal to 10 and a standard deviation equal to 3. What is the probability of selecting a sample mean of 7 or less from this population?

.0013

.4987

.9987

1.00

$$P_r(M < 7)$$

$$Z = \frac{x - M}{\sigma/\sqrt{n}} = \frac{7 - 10}{3/\sqrt{9}} = \frac{-3}{3/3}$$

$$= \frac{-3}{1}$$

$$= -3$$

