

May be two questions on
Sample Size

• "... what size sample is needed?"

"... how many should we sample?"

"... the sample size should be what?"

TWO TYPES OF SAMPLE SIZE QUESTIONS:

① • the one WITH a standard deviation (regular)

② • the one WITHOUT a proportion
%
% standard deviation (proportion)

a) ~~*~~ they give you the percent

b) ~~*~~ they don't give you the percent

(so 3 types I guess)

$$90\%: z=1.645 \quad 95\%: z=1.96 \quad 99\%: z=2.576$$

REGULAR TYPE... WITH a Standard deviation

Determine the sample size needed to determine the average grocery store expenditure if the standard deviation is \$17 and you want to be within of \$2 margin of error. Use 95% confidence.

margin error

$$n = \frac{[Z \times SD]^2}{\text{margin error}^2} = \frac{[1.96 \times 17]^2}{2^2} = \frac{277.56}{4} = 69.39$$

round UP Always

278
round UP Always

NO Strd deviation but has a given proportion

Suppose 12% of motorists don't wear a seatbelt. In order to be within 3%, determine the sample size required at 90%.

margin error

a %
is given

$$n = \frac{Z^2 \cdot p \cdot (1-p)}{(ME)^2} = \frac{(1.645)^2 \cdot .12 \cdot (1-.12)}{(.03)^2}$$

round UP

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NO strd deviation and does NOT have a given proportion.

In order to be within 2%, what sample size is needed at 99% to determine the proportion of items returned at Target.

other than confidence %, NO SD, NO % given.

use p=.50 if no % given

$$n = \frac{Z^2 \cdot p \cdot (1-p)}{(ME)^2} = \frac{(2.576)^2 \cdot .50 \cdot (1-.50)}{(.02)^2}$$

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REGULAR TYPE... WITH a Standard deviation

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NO Strd deviation but has a given proportion

Suppose 12% of motorists don't wear a seatbelt. In order to be within 3%, determine the sample size required at 90%.

NO strd deviation and does NOT have a given proportion.

In order to be within 2%, what sample size is needed at 99% to determine the proportion of items returned at Target.