

SAMPLE SIZE TO DETECT A SIGNIFICANT DIFFERENCE BETWEEN 2 MEANS WITH EQUAL SAMPLE SIZES AND VARIANCES

FORMULA FOR SAMPLE SIZE PER GROUP:

$$N = \frac{((Z\alpha + Z\beta)^2 \times 2 \times B^2)}{d^2} \text{ - for 1-tailed test}$$

$$N = \frac{((Z\alpha/2 + Z\beta)^2 \times 2 \times B^2)}{d^2} \text{ - for 2-tailed test}$$

FORMULA FOR TOTAL SAMPLE SIZE (BOTH GROUP):

$$\text{Maximum Number of Samples} = (N \times 2)$$

Where,

N = Sample Size

$Z\alpha$ = critical value of the Normal distribution at α (confidence level)

$Z\alpha/2$ = critical value of the Normal distribution at $\alpha/2$ (confidence level)

$Z\beta$ = critical value of the Normal distribution at β (power)

B^2 = Variance

d = difference between two means