Sample size to detect a significant difference between 2 means with equal sample sizes and variances

$$N = \frac{(r+1)(Z_{\alpha/2} + Z_{1-\beta})^2 \sigma^2}{rd^2}$$

Where,

N= Sample Size

$Z_{\alpha/2}$= critical value of the Normal distribution at α/2 (confidence level)

Z(1- β) = critical value of the Normal distribution at β (power)

r = Ratio of sample size required for 2 groups

d = Difference of means of 2 groups

σ = pooled standard deviation