Warsztaty badawcze - projekt 6

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```
Warning: package 'gsDesign' was built under R version 3.1.2
Warning: package 'RUnit' was built under R version 3.1.2
Warning: package 'pwr' was built under R version 3.1.2
```
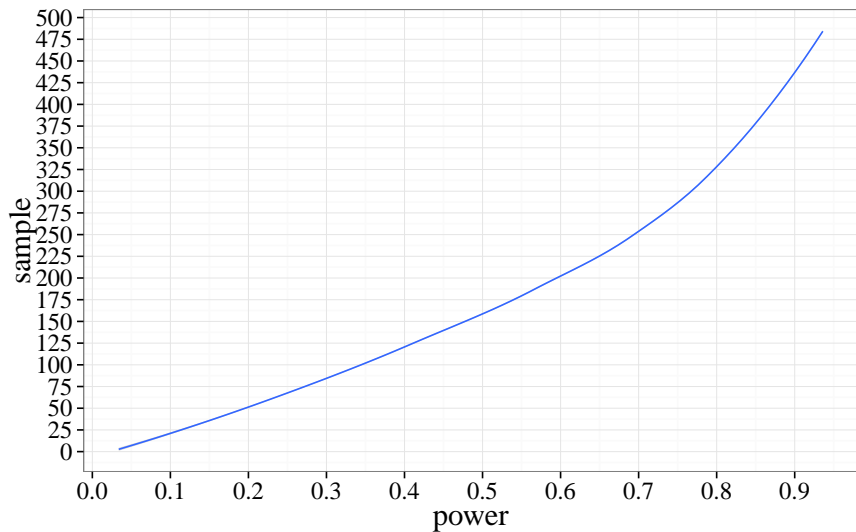
Pytanie 1

```
nBinomial( p1 = 0.45, p2 = 0.3, alpha = 0.05, n = 200,
           outtype = 2, sided = 2)
```

```
   n1  n2  Power
1 100 100 0.5924
```

```
bpower( p1 = 0.45, p2 = 0.3, n = 200, n1 = 100, n2 = 100, alph
```

```
 Power
0.5924
```

Pytanie 1

Pytanie 2

```r
var <- function(x){ 6.5^2*sqrt(x) }
var(52) # wariancja w 52 tyg
```

```
[1] 304.7
```

```r
(dif <- 15 - qnorm( 0.55 )*sqrt( var(52) ) -
    (15 - qnorm( 0.7 )*sqrt( var(52) )))
```

```
[1] 6.96
```

```r
nNormal( delta1 = dif, delta0 = 0, n = 200, alpha = 0.05,
         side = 2, sd = sqrt( var(52) ), ratio = 1,
         outtype =2 )
```

```
    n1  n2 Power
1 100 100 0.805
```

Pytanie 2

```
# ręczne sprawdzenie
sigma <- sqrt( var(52)*(1/100+1/100) ) # sigma efektu
beta <- pnorm( qnorm(1-0.05/2), dif/sigma ) -
   pnorm( qnorm(0.05/2), dif/sigma )
(1-beta)
```

[1] 0.805

Pytanie 3

```
var(26)
```

```
[1] 215.4
```

```
(dif <- 15 - qnorm( 0.55 )*sqrt( var(52) ) -
   (15 - qnorm( 0.7 )*sqrt( var(52) )))
```

```
[1] 6.96
```

```
nNormal( delta0 = 0,   delta1 = dif/2,  n = 200,
         alpha = 0.05, sided = 2, sd = sqrt( var(26) ),
         ratio = 1, outtype = 2)
```

```
   n1  n2   Power
1 100 100 0.3884
```

Pytanie 4

```
(dif <- 15 - qnorm( 0.55 )*sqrt( var(26) ) - 6.6)
```

```
[1] 6.556
```

```
nNormal( delta0 = 0, delta1 = dif, n = 200,
         alpha = 0.05, side = 2, sd = sqrt( var(26) ),
         ratio = 1, outtype = 2)
```

```
   n1  n2  Power
1 100 100 0.8846
```

Pytanie 5

rANOVA

Pytanie 6

```
(dif <- 15 - qnorm( 0.55 )*sqrt( var(52) ) -
    (15 - qnorm( 0.7 )*sqrt( var(52)) ))
```

```
[1] 6.96
```

```
nNormal( delta0 = -dif, delta1 = 0, sd = sqrt( var(52) ),
         alpha = 0.05, beta = 0.2, outtype = 2)
```

```
      n1    n2
1 77.77 77.77
```

PYTANIE 6

```r
2*( qnorm( 0.8 ) + qnorm( 0.95) )^2/(
    dif/sqrt( var(52) ))^2
```

```
[1] 77.77148
```

```r
# reczne sprawdzenie, OK
```

PTANIE 7

```
nNormal( delta0 = -5, delta1 = 0, sd = sqrt( var(52) ),
         alpha = 0.05, beta = 0.2, outtype = 2)
```

```
        n1        n2
1 150.6907 150.6907
```

```
2*( qnorm( 0.8 ) + qnorm( 0.95 ))^2/( 5/sqrt( var(52) ))^2
```

```
[1] 150.6907
```

```
# reczne sprawdzenie, OK
```

Pytanie 8

```
nNormal( delta0 = -dif, delta1 = 0, sd = sqrt( var(52) ),
         alpha = 0.05, beta = 0.2, outtype = 2,
         ratio = 1/2 )
```

```
        n1         n2
1 116.6572 58.32861
```

```
n <- 3*( qnorm( 0.8 ) + qnorm( 0.95 ))^2/(
   dif/sqrt( var(52) ))^2
# reczne sprawdzenie, OK
c(n,0.5*n)
```

```
[1] 116.65722   58.32861
```

Pytanie 9

```
nNormal( delta0 = -5, delta1 = -2, sd = sqrt( var(52) ),
         alpha = 0.05, beta = 0.2, outtype = 2)
```

```
        n1          n2
1 418.5853 418.5853
```

```
(n <- 2*( qnorm( 0.8 ) + qnorm( 0.95 ))^2/(
   (-2+5)/sqrt( var(52) ))^2)
```

```
[1] 418.5853
```

Pytanie 10

```
nNormal( delta0 = -5, delta1 = 3, sd = sqrt( var(52) ),
         alpha = 0.05, beta = 0.2, outtype = 2)
```

```
        n1        n2
1 58.86356 58.86356
```

```
(n <- 2*( qnorm( 0.8 ) + qnorm( 0.95 ))^2/(
    (3+5)/sqrt( var(52) ))^2)
```

```
[1] 58.86356
```