

5. Survey is taken over course of 2 weeks, Pollsters wish to see if there's a difference after a new advertising campaign run.

	Week 1	Week 2
Favourable	45	56
Unfavourable	35	47

$$H_0: P_1 = P_2$$

$$H_1: P_1 \neq P_2$$

ans > prop.test(c(45,56), c(45+35, 56+47))

2 sample test for equality of proportions  
with continuity correction

data: c(45,56) out of c(80,103)

X-squared = 0.010813, df = 1, p-value = 0.9172

alternative hypothesis: two sided

95 percent confidence interval:

-0.1374478

0.1750692

sample estimates:

prop1

0.56250000

prop2

0.54368930

Interpretation:

We observe p-value > 0.9172. Accepted  $H_0$

- Two mean test

Problems:

1. Heights of people from 2 countries with population variance of 5 and 8.5. Is there any significant difference between average heights?

A	175	168	168	190	156	181	182	175	174	179
B	185	169	173	173	188	186	175	174	179	180

ans

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> a = c(175, 168, 168, 190, 156, 181, 182, 175, 174, 179)
> b = c(185, 169, 173, 173, 188, 186, 175, 174, 179, 180)
> n1 = length(a)
> n2 = length(b)
> abs((mean(a) - mean(b)) / (sqrt(var(a)/n1 +
                                var(b)/n2)))

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[1] 0.947373

x ——— x — x ——— x