Hypothesis testing
Gipotezani tekshirish

Masala:

Kompaniya o’rtacha massasi 450 gramm bo’lgan kalkulyatorlar ishlab chiqaradi. Bir injener bunga ishonmadi va 50ta kalkulyatorlarni tarozida o’lchab ko’rmoqchi.

‘Null’ va ‘alternative’ gipotezalarni aniqlang.

- **H0(Null hypothesis): μ = 450 gr**
- **Ha(Alternative hypothesis) μ != 450 gr**

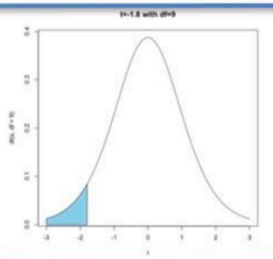
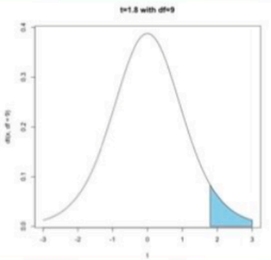
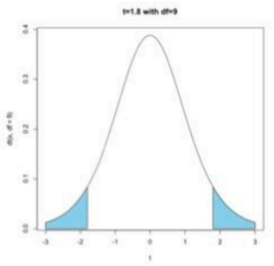
Masala (o’quvchilar uchun):

O’qituvchi kamida 80% o’quvchilar imtixondan o’tadi deb hisoblaydi. Ammo bir o’quvchi gipotezani tekshirib ko’rmoqchi. Null va alternative hypothesisni yozing

Masala 2

O’qituvchi o’quvchilarning o’rtacha bahosi 2.7dan boshqacha bo’lishini test qilmoqchi. Null va alternative hypothesisni yozing

One-tailed vs two tailed tests

	H_a Description	Figure
One-tailed	Population mean is below the standard	
One-tailed	Population mean is above the standard	
Two-tailed	Population mean is different from the standard	

$n < 30$

σ is unknown

$$t = \frac{\bar{x} - \mu}{s/\sqrt{n}}$$

$n < 30$

σ known

$$z_c = \frac{\bar{x} - \mu_0}{\sigma/\sqrt{n}}$$

$n > 30$

σ is unknown

$$z_c = \frac{\bar{x} - \mu_0}{s/\sqrt{n}}$$

$n > 30$

σ is known

$$z_c = \frac{\bar{x} - \mu_0}{\sigma/\sqrt{n}}$$

$p \rightarrow$ pop. proportion

$$z_c = \frac{\hat{p} - p}{\sqrt{\frac{pq}{n}}}$$

$$q = 1 - p$$