

1.

Jedna marka automobila ima potrošnju goriva navedenu u tablici. Izračunajte prosečnu potrošnju goriva te marke automobila.

Potrošnja goriva (l/100 km) ( $x_i$ )	Automobil ( $f_i$ )
6.0-7.0	3
7.0-8.0	5
8.0-9.0	10
9.0-10.0	2

grupisani u razrede uzmemo sredinu razreda  $m_i$

$$\bar{x} = \frac{\sum_{i=1}^4 f_i m_i}{\sum_{i=1}^4 f_i} = 8.05 \text{ l/100 km}$$

$$\sigma = \sqrt{\frac{\sum_{i=1}^4 f_i m_i^2 - \bar{x}^2 \sum_{i=1}^4 f_i}{\sum_{i=1}^4 f_i}} = 0.86$$

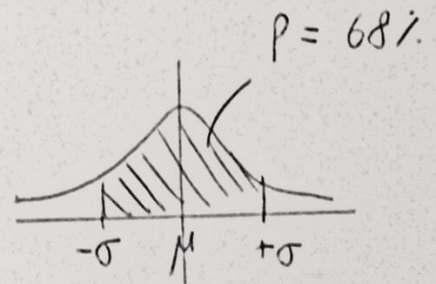
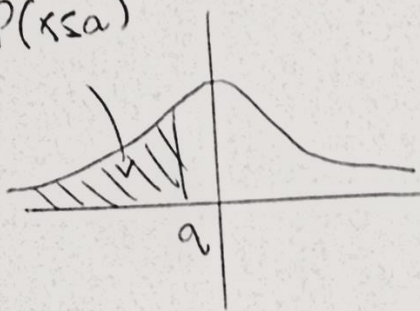
Normalna gausova raspodijela

$$f(x) = \frac{1}{\sqrt{2\pi}\sigma} e^{-\frac{1}{2}\frac{(x-\mu)^2}{\sigma^2}}$$

$$\bar{E}(x) = \mu$$

$$V(x) = \sigma^2$$

$P(x < a)$



Ako se uzme u obzir

$$z = \frac{x-\mu}{\sigma} \Rightarrow \phi(z) = \frac{1}{\sqrt{2\pi}} e^{-\frac{1}{2}z^2}$$

$\Rightarrow \mu = 0$  Možemo računati vjerojatnost  
Gaussove raspodjele koristeći tablice

2. Jedno istraživanje unutar bankarskog instituta pokazalo je se da vrijeme čekanja na šalteru prati Gaussovu raspodjelu sa srednjom vrijednosti 20 min i varijancom 9 min.

Kolika je vjerojatnost da je vrijeme čekanja na šalteru:

- a)  $\geq 25$  min
- b)  $\leq 16$  min
- c)  $\geq 18$  min i  $\leq 21$  min

(Rj. A 0.047, B 0.0918, C 0.37)



$$A) \geq 25 \text{ min}$$

$$z = \frac{25 - 20}{3} = 1.66$$

$$P(z \geq 1.66) = 1 - P(z \leq 1.66) = 1 - 0.9525 = 0.047$$

↑  
TABLICA!

$$B) \leq 16 \text{ min}$$

$$z = \frac{16 - 20}{3} = -1.33$$

$$P(z \leq -1.33) = P(z \geq 1.33) = 1 - 0.9082 = 0.0918$$

TABLICA  
↓

$$C) z_1 = \frac{18 - 20}{3} = -0.66$$

$$z_2 = \frac{21 - 20}{3} = 0.33$$

$$P(-0.66 \leq z \leq 0.33) = P(z \leq 0.33) - P(z \leq -0.66)$$

$P(z \geq 0.66)$

$$= P(z \leq 0.33) - [1 - P(z \geq 0.66)] = 0.629 - (1 - 0.745) = 0.37$$

