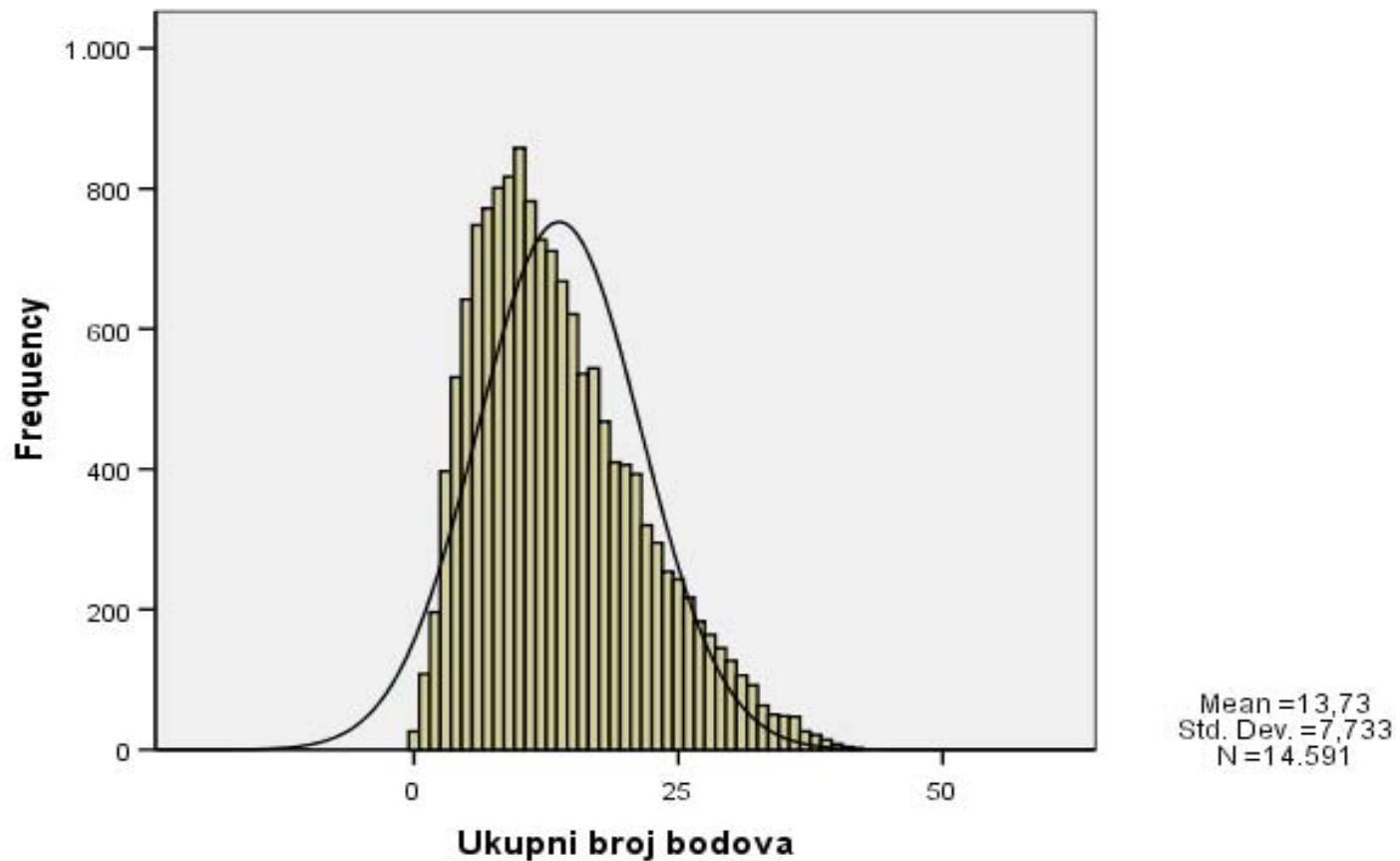




**METRIJSKA ANALIZA NACIONALNOGA  
ISPITA IZ MATEMATIKE  
(NIŽA RAZINA)  
PROVEDENOGA U SVIBNJU 2008.**

Istraživačko-razvojni odjel  
NCVVO

# Raspodjela ukupnih rezultata





- $N = 14591$
- $M = 13.73$
- $SD = 7.733$
- $MIN = 0; MAX = 42$
- Max. mogući rezultat = 42
- Cronbach  $\alpha = 0.883$

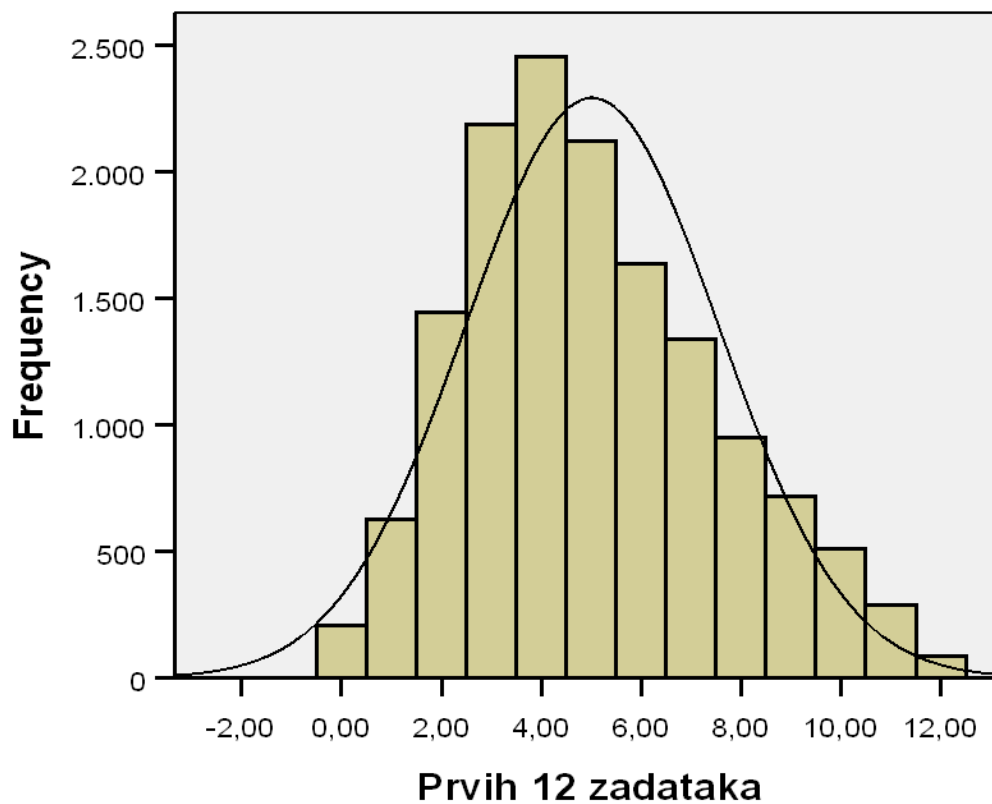


<b>Težina zadatka</b>	<b>Redni broj zadatka</b>
<b>Vrlo težak (0 – 0,2)</b>	<b>1, 10, 20, 23, 24, 26a, 26b, 26c, 27b, 28, 29</b>
<b>Težak (0,21 – 0,4)</b>	<b>7, 12, 13, 17, 19, 21, 22, 27c</b>
<b>Srednje težak (0,41 – 0,6)</b>	<b>2, 3, 4, 5, 6, 8, 9, 14, 15, 16, 18, 25c</b>
<b>Lagan (0,61 – 0,80)</b>	<b>11, 25a, 25b, 27a</b>
<b>Vrlo lagan (0,81 – 1)</b>	



$M = 5,02$   
 $SD = 2,538$

Prvih 12 zadataka

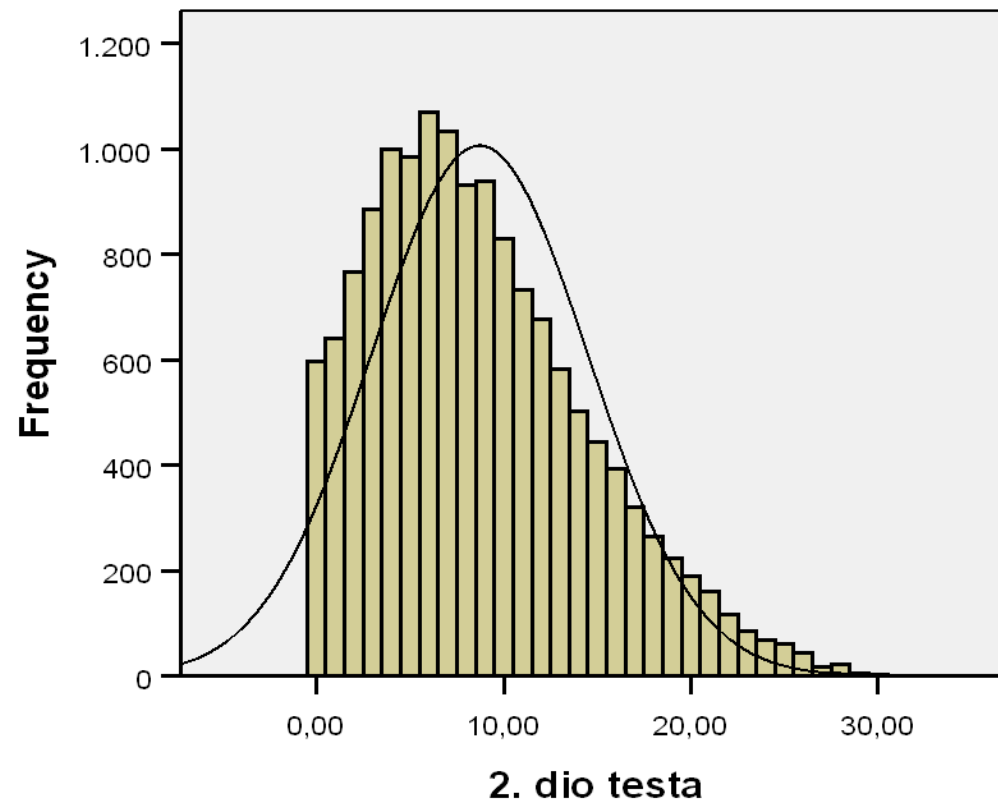


Mean = 5,0153  
Std. Dev. = 2,  
53823  
N = 14.591



M = 8,72  
SD = 5,783

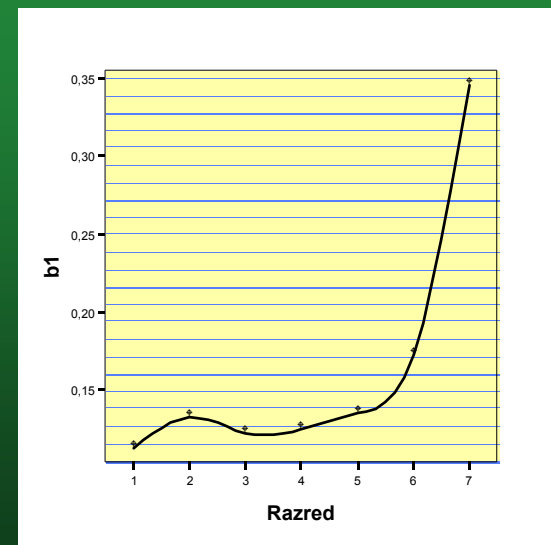
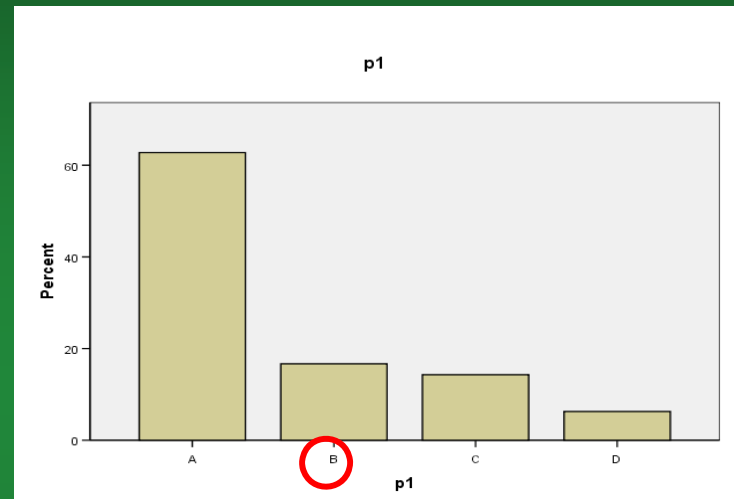
## 2. dio testa



Mean = 8,7155  
Std. Dev. = 5,  
78295  
N = 14.591

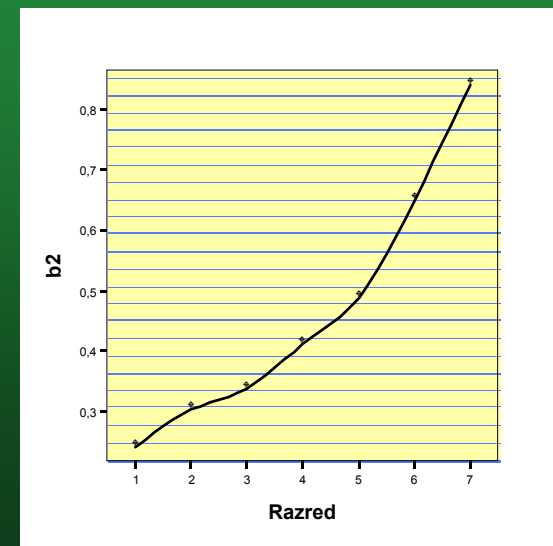
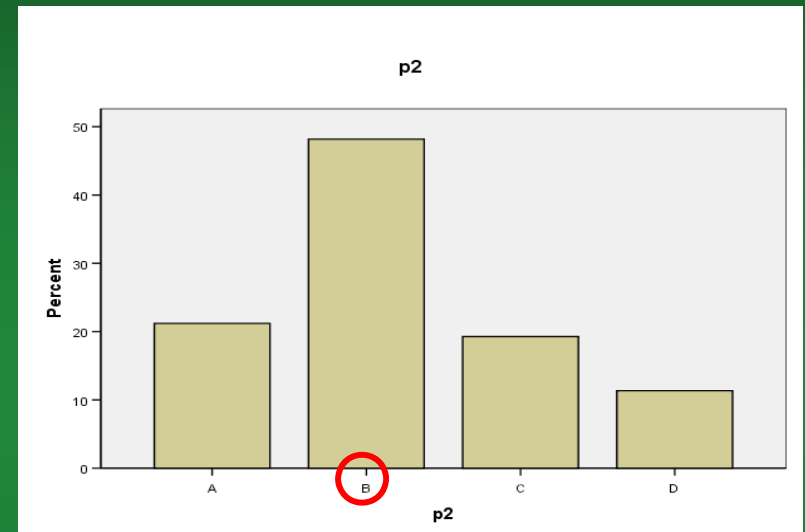
# 1. Kojemu intervalu pripadaju brojevi $-\frac{1}{2}$ i 1?

<b>M</b>	<b>0.16</b>
<b>SD</b>	<b>0.371</b>
<b>ID</b>	<b>0.156</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.883</b>



2. Ako je  $\frac{x}{3} + \frac{y}{-2} = 1$ , tada je  $y$  jednako:

<b>M</b>	<b>0.47</b>
<b>SD</b>	<b>0.499</b>
<b>ID</b>	<b>0.336</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.881</b>

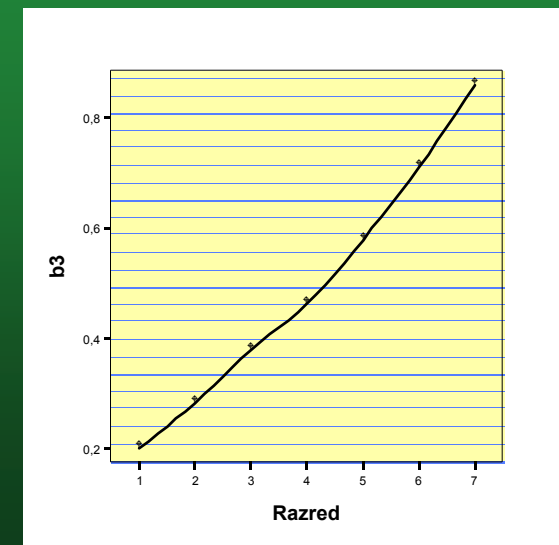
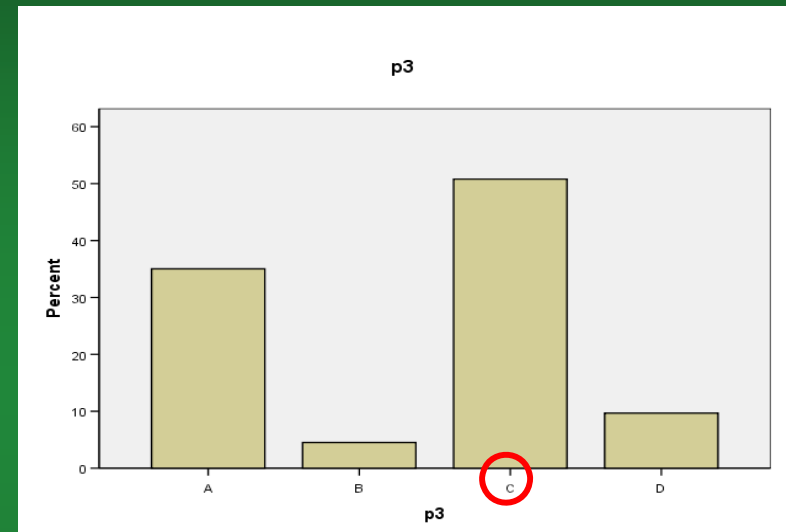




3. Na telefonskoj kartici od 50 impulsa iskorišteno ih je 82%.

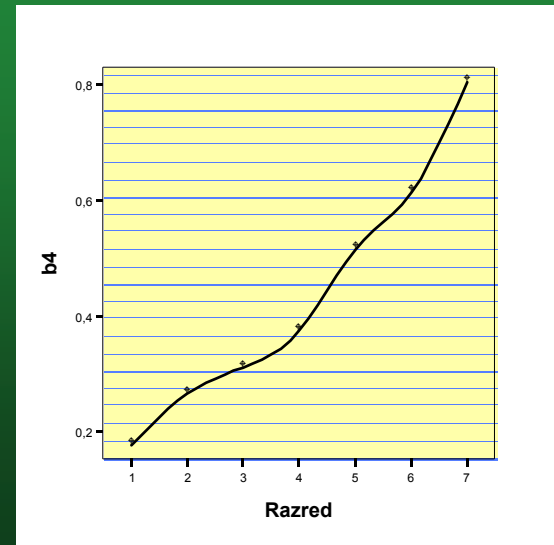
Koliko je impulsa neiskorišteno?

<b>M</b>	<b>0.50</b>
<b>SD</b>	<b>0.500</b>
<b>ID</b>	<b>0.378</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.880</b>



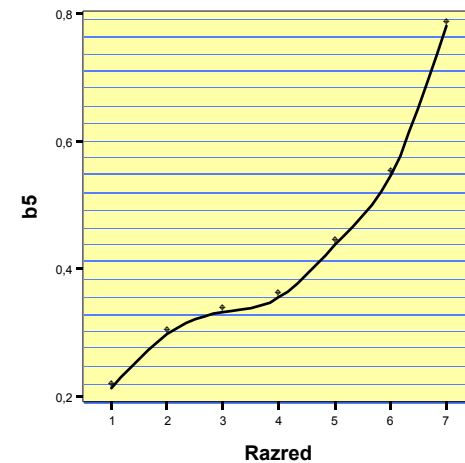
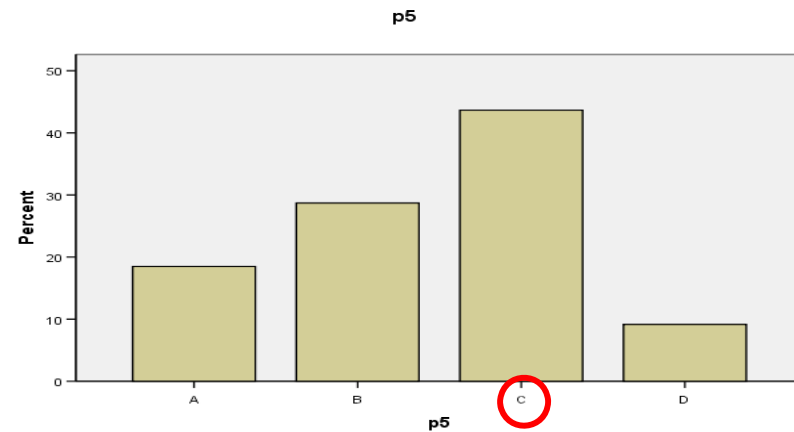
4. Rabeći džepno računalo po potrebi, odredite koji je od navedenih brojeva najveći?

<b>M</b>	<b>0.44</b>
<b>SD</b>	<b>0.497</b>
<b>ID</b>	<b>0.358</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.880</b>



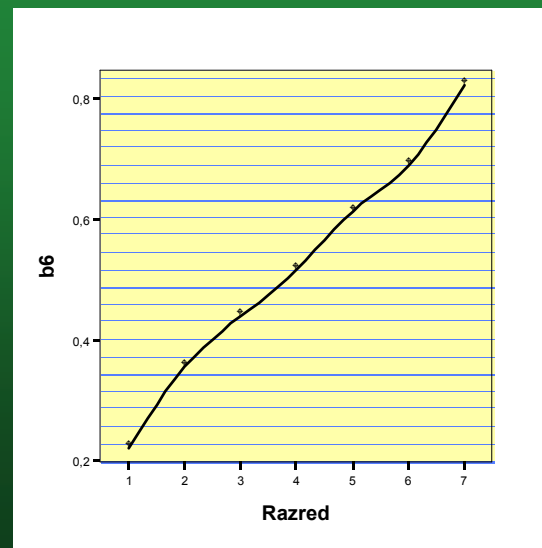
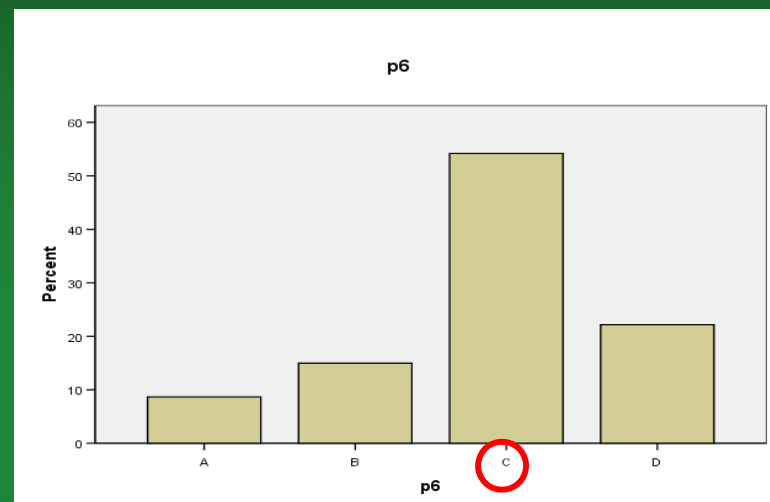
5.  $36^{\circ}36' =$

<b>M</b>	<b>0.43</b>
<b>SD</b>	<b>0.494</b>
<b>ID</b>	<b>0.300</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.881</b>



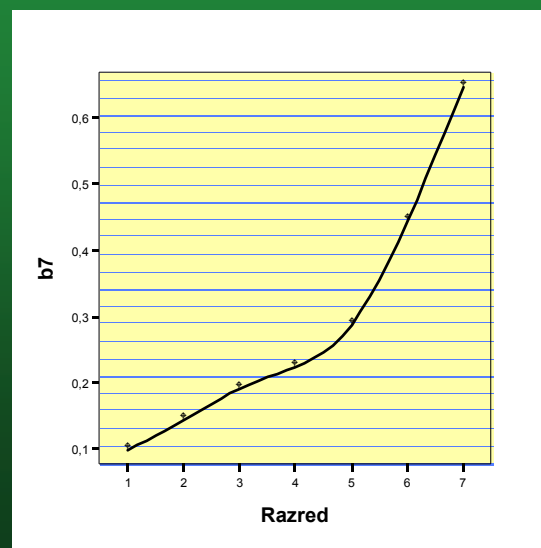
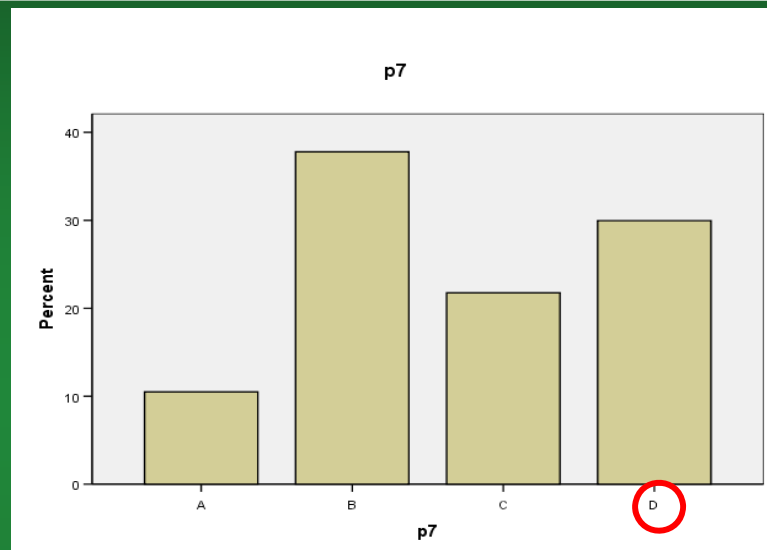
6. Za  $n=3$  vrijednost izraza  $2000 \cdot \left(1 + \frac{5}{100}\right)^n$  jednaka je:

<b>M</b>	<b>0.53</b>
<b>SD</b>	<b>0.499</b>
<b>ID</b>	<b>0.321</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.881</b>



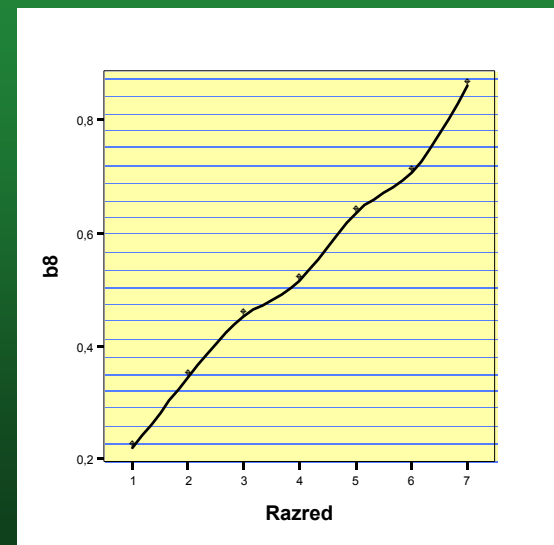
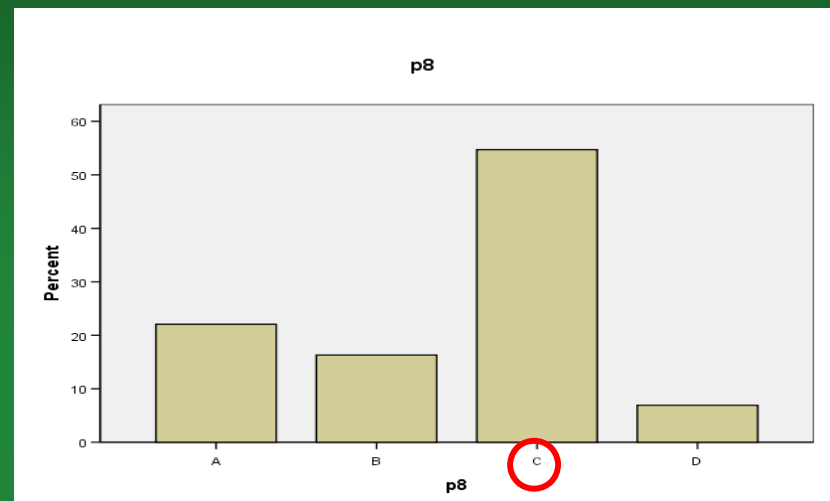
7. Na kojoj je slici prikazan pravac  $y = \frac{1}{2}x - 2$  ?

<b>M</b>	<b>0.29</b>
<b>SD</b>	<b>0.455</b>
<b>ID</b>	<b>0.345</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.881</b>



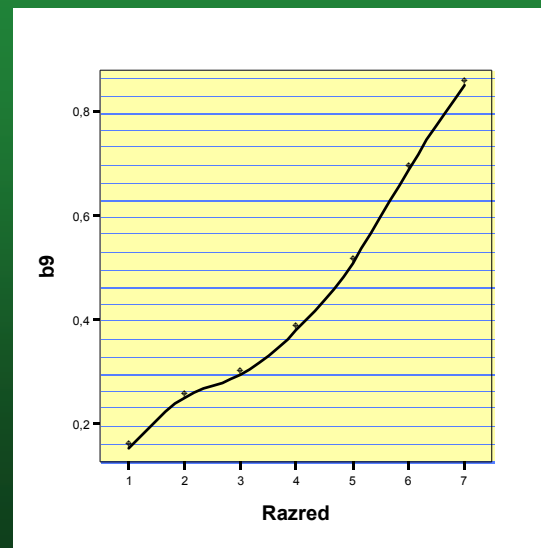
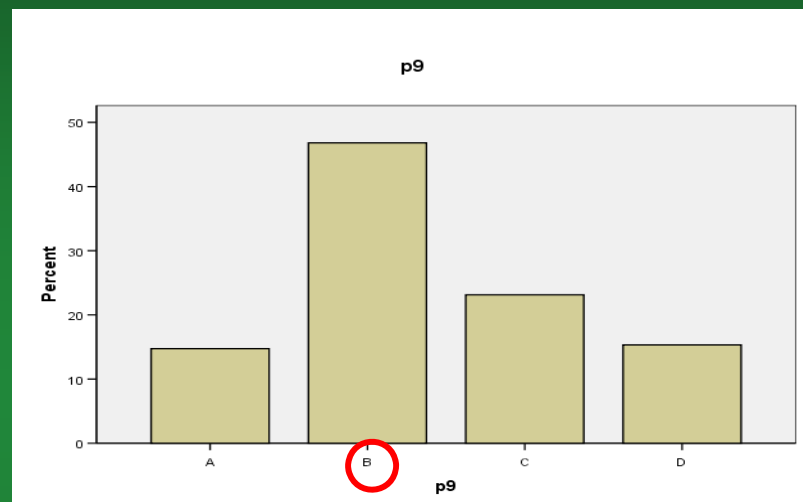
8. Jedna astronomska jedinica iznosi  $1.49 \times 10^8$  km. To je:

<b>M</b>	<b>0.54</b>
<b>SD</b>	<b>0.499</b>
<b>ID</b>	<b>0.344</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.881</b>



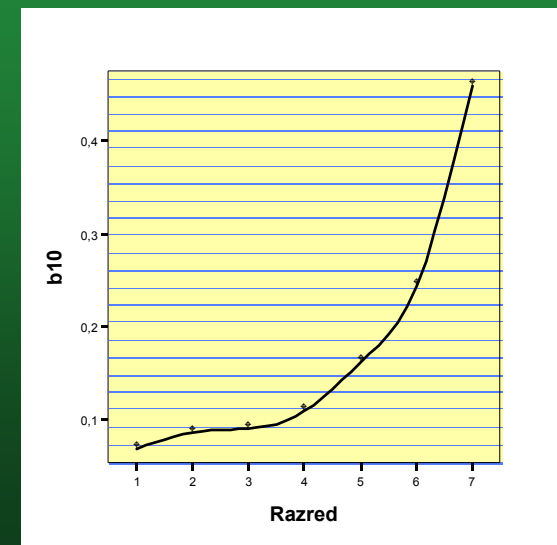
9. Nepoznana  $y$  iz sustava  $\begin{cases} 3x + 4y + 5 = 0 \\ 7x - 8y + 16 = 0 \end{cases}$  jednaka je:

<b>M</b>	<b>0.45</b>
<b>SD</b>	<b>0.498</b>
<b>ID</b>	<b>0.411</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.879</b>



10. Funkcija, čiji je graf prikazan na slici, postiže najmanju vrijednost:

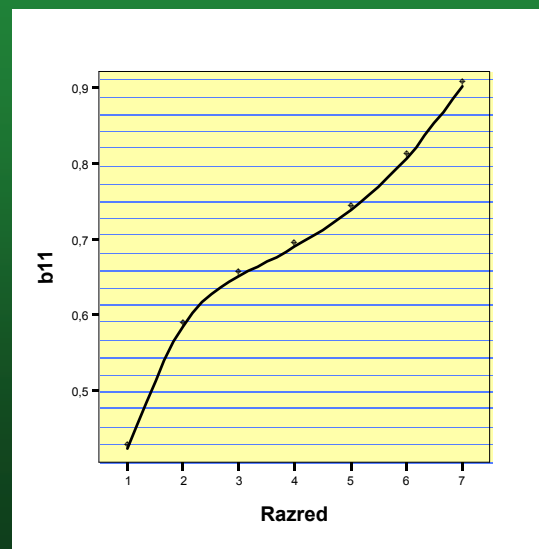
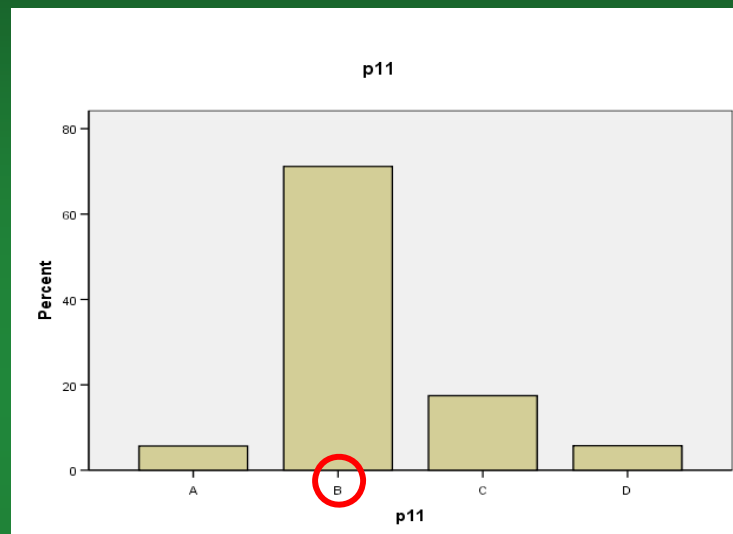
<b>M</b>	<b>0.18</b>
<b>SD</b>	<b>0.380</b>
<b>ID</b>	<b>0.299</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.881</b>





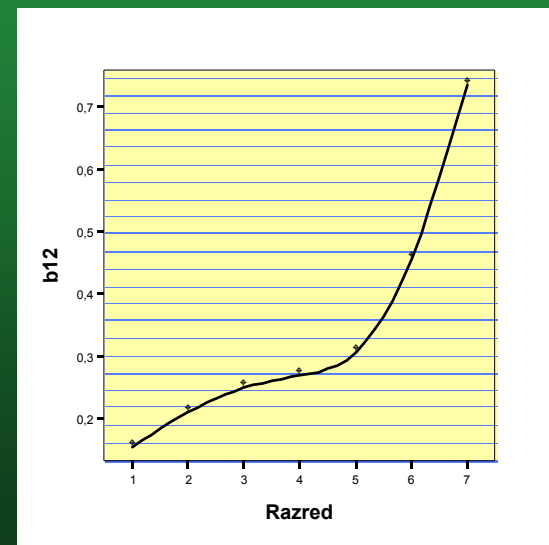
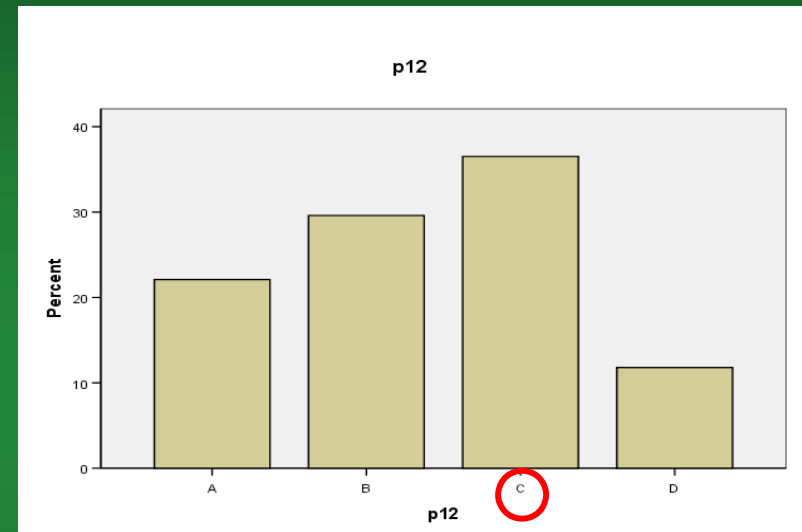
$$11. \frac{1}{ab} - \frac{1}{ac} + \frac{1}{bc} =$$

<b>M</b>	<b>0.69</b>
<b>SD</b>	<b>0.463</b>
<b>ID</b>	<b>0.241</b>
<b>α - zadatak</b>	<b>0.882</b>



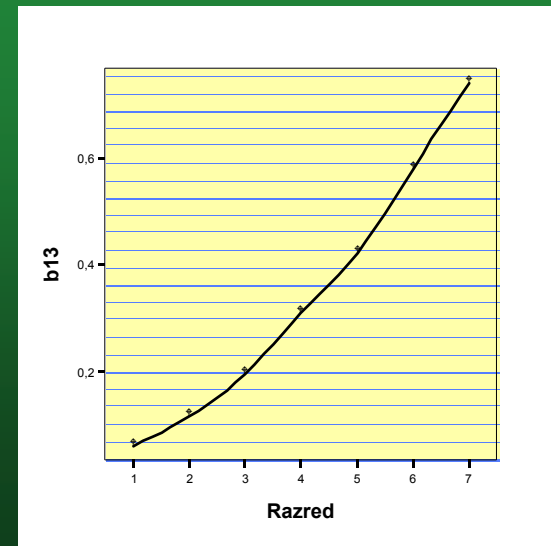
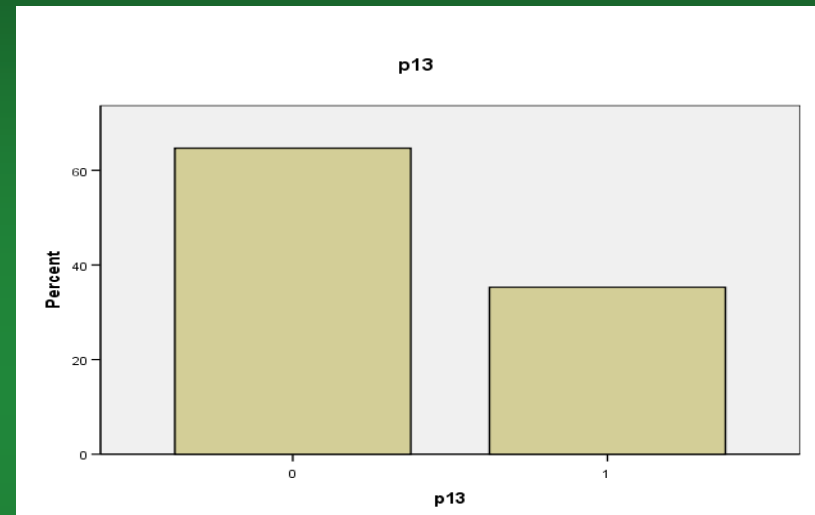
12. Opseg trokuta je 30 cm. Kolika je površina trokuta?

<b>M</b>	<b>0.34</b>
<b>SD</b>	<b>0.474</b>
<b>ID</b>	<b>0.332</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.881</b>



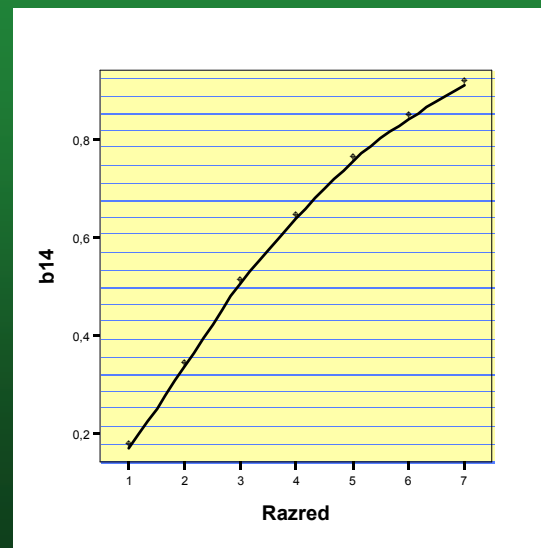
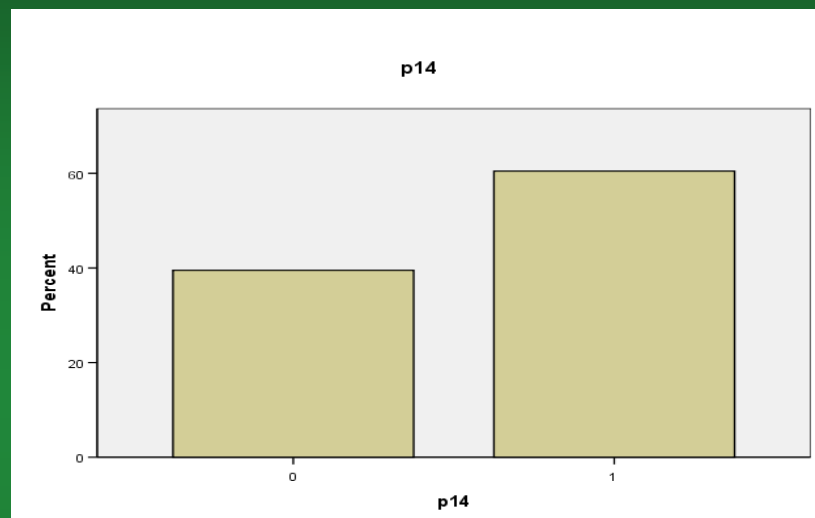
13. Na brojevnome pravcu prikažite skup svih realnih brojeva  $x$  za koje je  $x < 2.5$ .

<b>M</b>	<b>0.35</b>
<b>SD</b>	<b>0.477</b>
<b>ID</b>	<b>0.436</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.879</b>



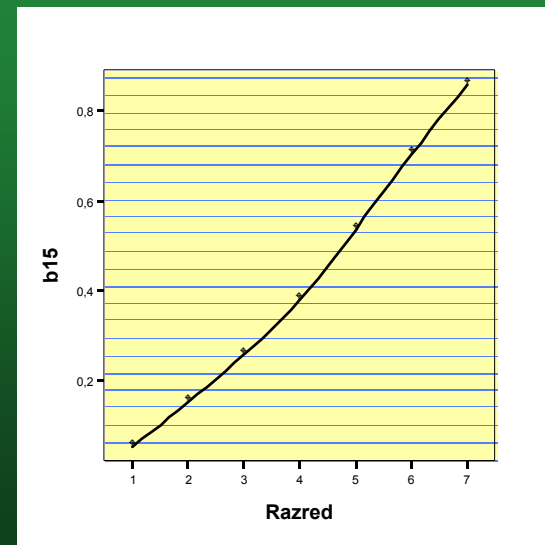
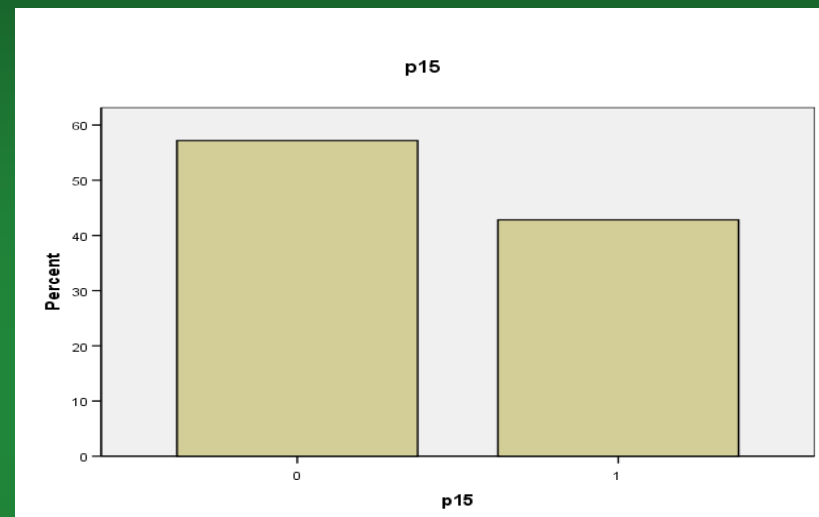
$$14. \frac{-7 + 5 \cdot 9}{7 \cdot 2 - 1} =$$

<b>M</b>	<b>0.60</b>
<b>SD</b>	<b>0.490</b>
<b>ID</b>	<b>0.422</b>
<b>α - zadatak</b>	<b>0.879</b>



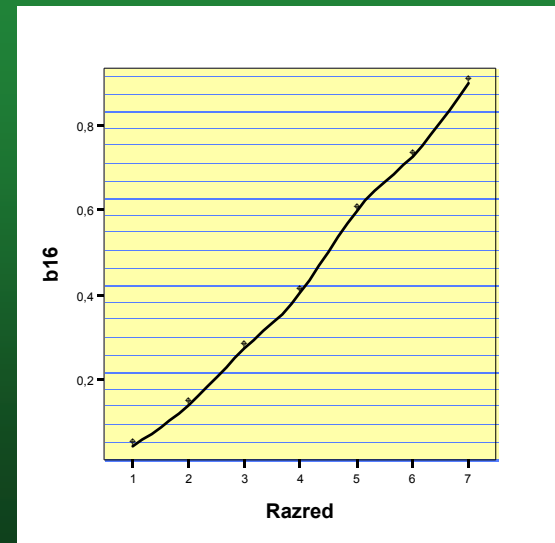
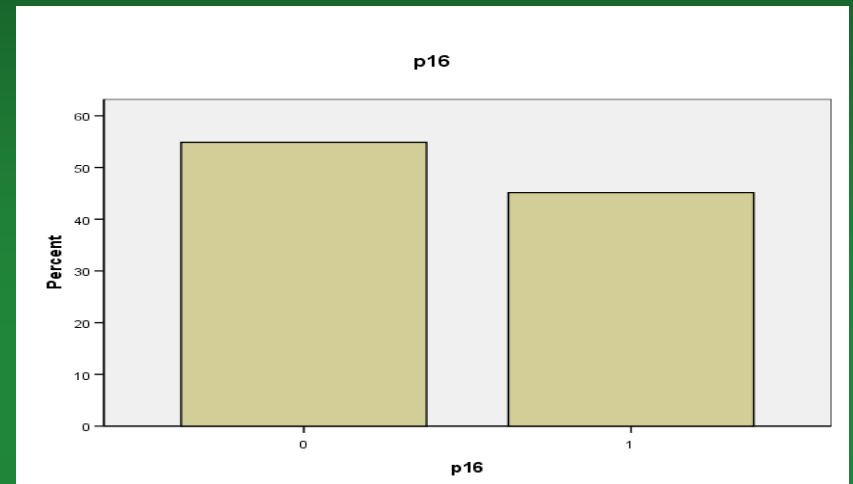
# 15. Koliko je 23% od 4 356?

<b>M</b>	<b>0.42</b>
<b>SD</b>	<b>0.494</b>
<b>ID</b>	<b>0.496</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.878</b>



16. Za  $13 \text{ m}^3$  vode treba platiti 127.27 kn. Koliko treba platiti  $10 \text{ m}^3$  vode?

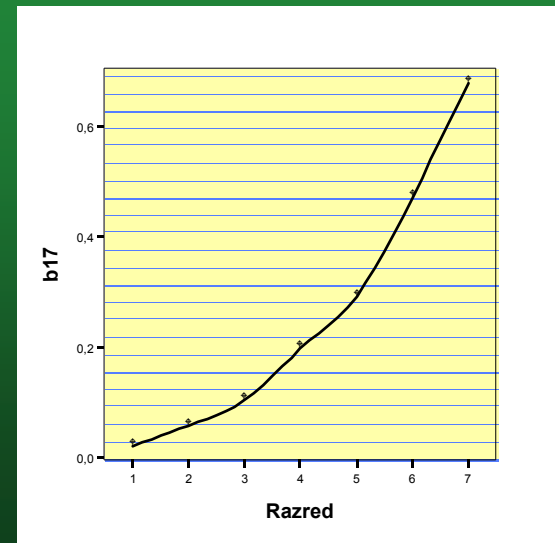
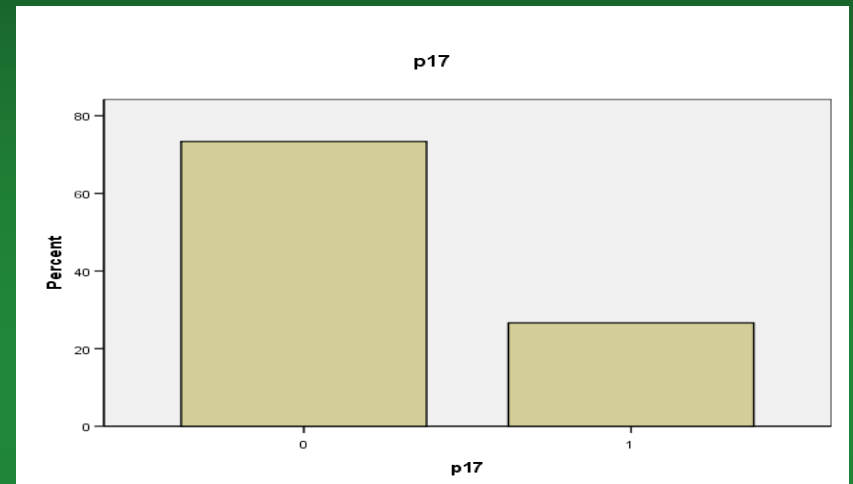
<b>M</b>	<b>0.45</b>
<b>SD</b>	<b>0.497</b>
<b>ID</b>	<b>0.525</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.877</b>



# 17. Riješite nejednadžbu

$$3x(2 + x) > 2.$$

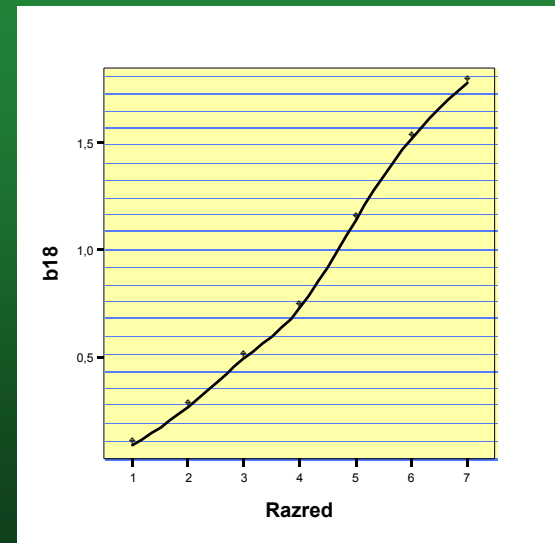
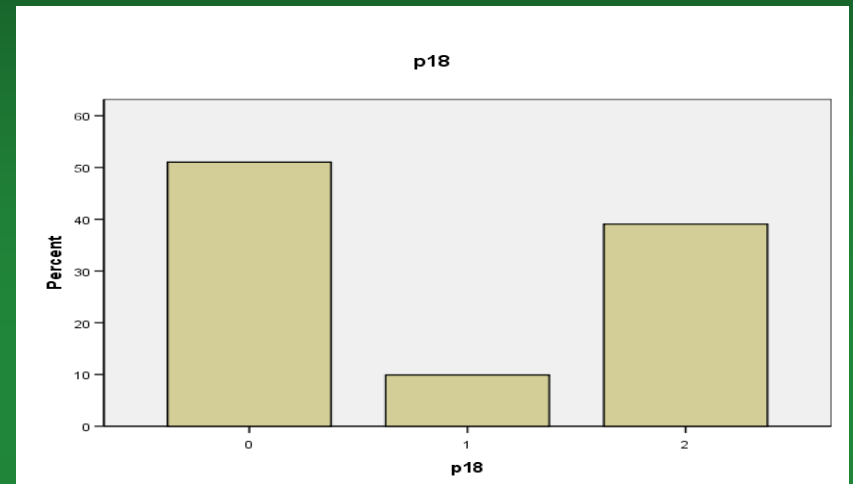
<b>M</b>	<b>0.26</b>
<b>SD</b>	<b>0.441</b>
<b>ID</b>	<b>0.465</b>
<b>α - zadatak</b>	<b>0.879</b>



# 18. Riješite jednađbu

$$2x^2 - 3x - 2 = 0.$$

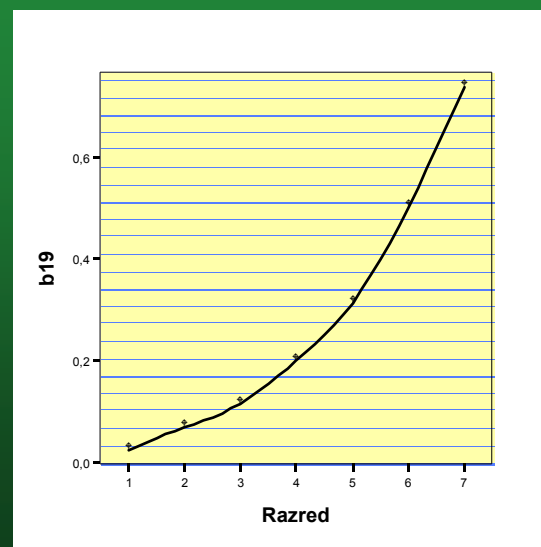
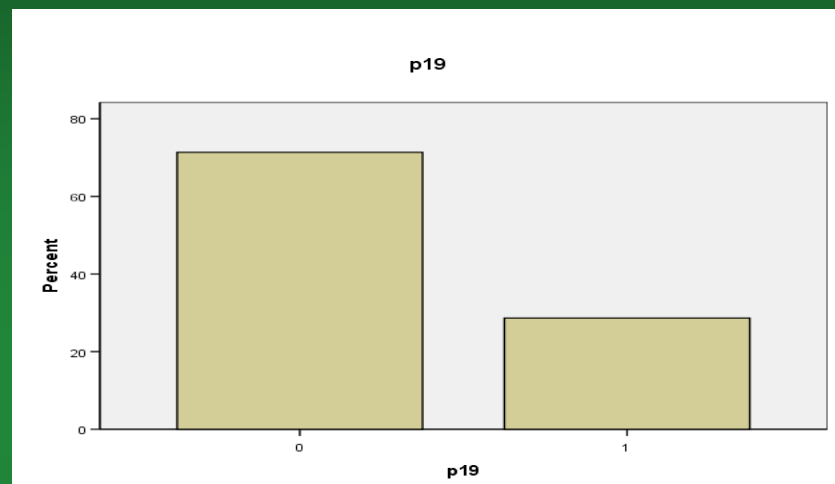
<b>M</b>	<b>0.87</b>
<b>SD</b>	<b>0.941</b>
<b>ID</b>	<b>0.524</b>
<b>α - zadatak</b>	<b>0.878</b>





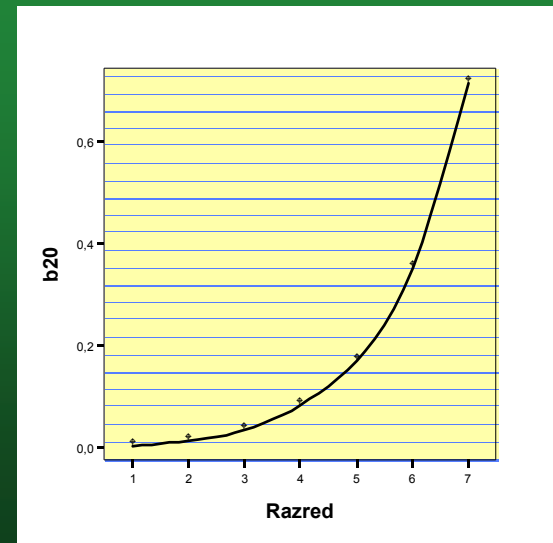
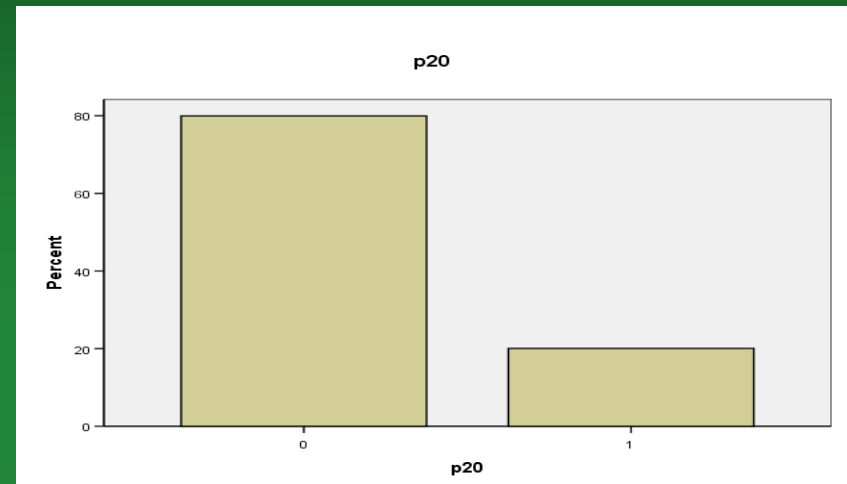
$$19. (2x - 3)^2 =$$

<b>M</b>	<b>0.28</b>
<b>SD</b>	<b>0.451</b>
<b>ID</b>	<b>0.487</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.878</b>



20. Za brojeve  $a$  i  $b$  vrijedi  
 $a : b = 3 : 4$ ,  $a + b = 21$ . Odredite  $a$ .

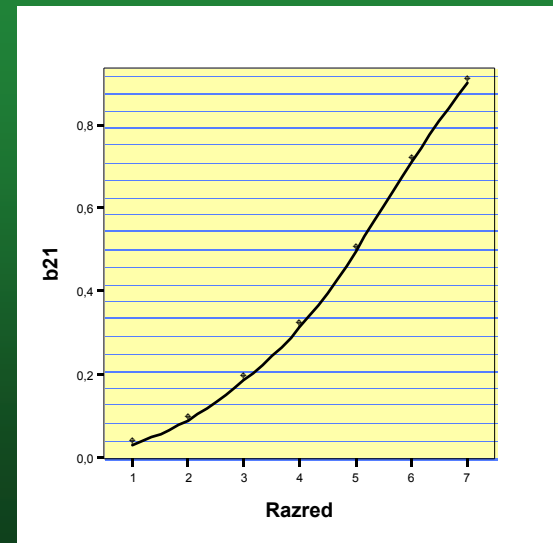
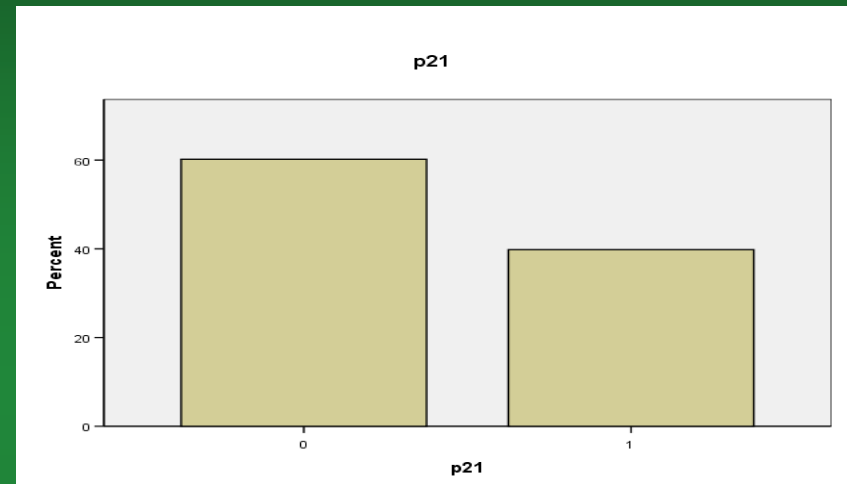
<b>M</b>	<b>0.20</b>
<b>SD</b>	<b>0.399</b>
<b>ID</b>	<b>0.557</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.877</b>



# 21. Riješite jednađbu

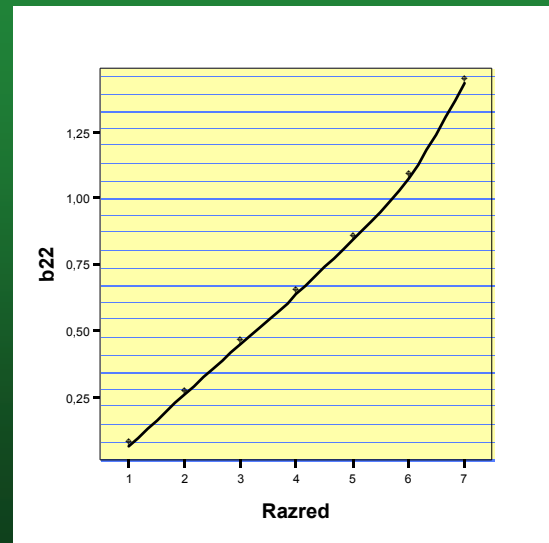
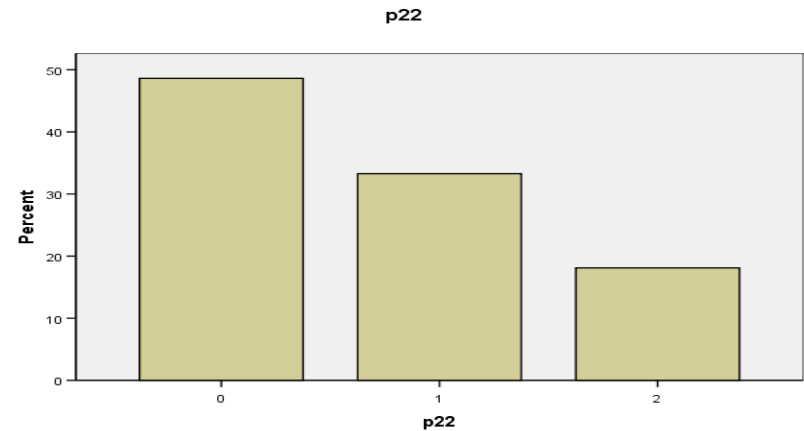
$$(x - 1)(x + 5) = x^2$$

<b>M</b>	<b>0.39</b>
<b>SD</b>	<b>0.489</b>
<b>ID</b>	<b>0.564</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.876</b>



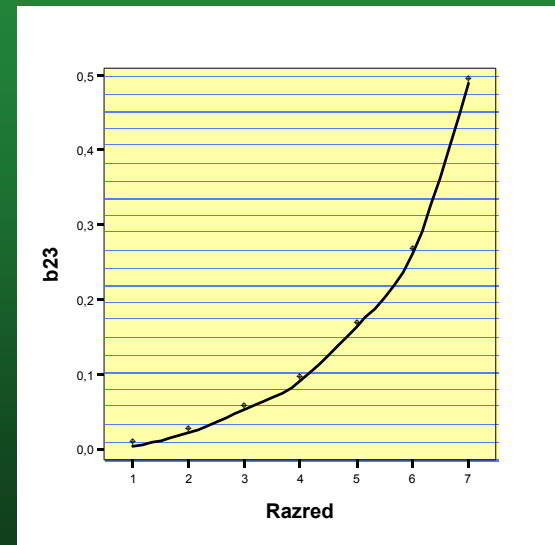
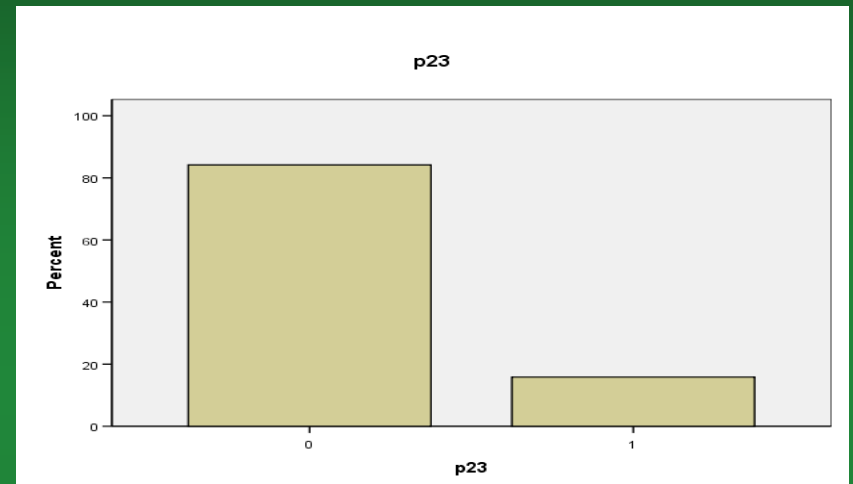
## 22. Pravci a i b su usporedni.

<b>M</b>	<b>0.69</b>
<b>SD</b>	<b>0.757</b>
<b>ID</b>	<b>0.513</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.877</b>



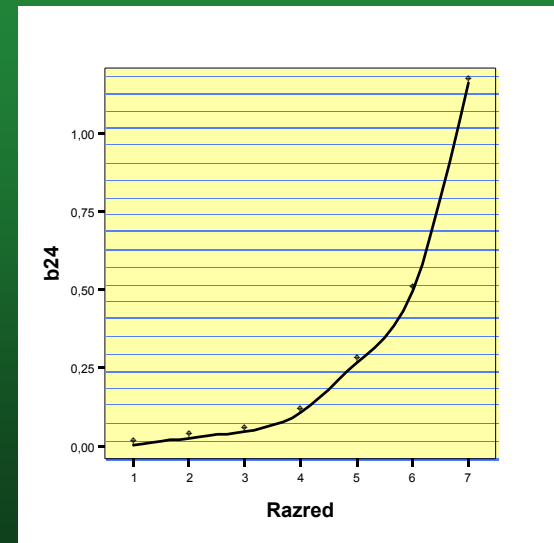
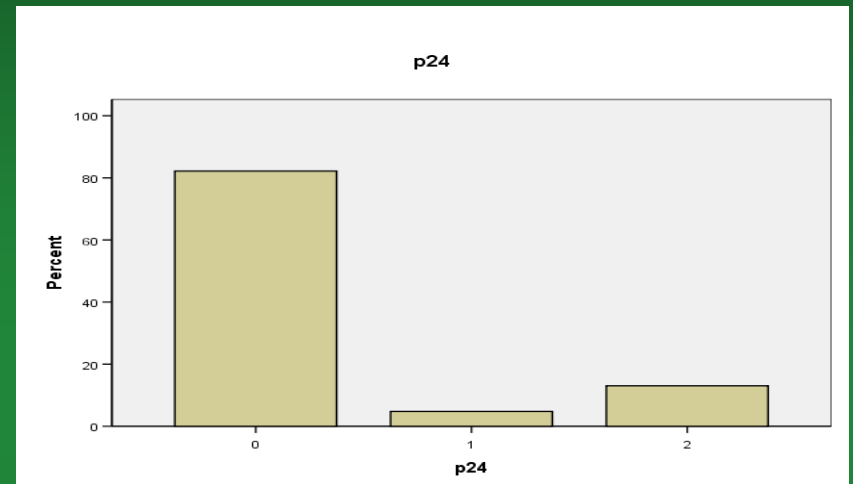
23. Autobusi A i B na početku radnoga vremena zajedno kreću s polazne stanice.

<b>M</b>	<b>0.16</b>
<b>SD</b>	<b>0.364</b>
<b>ID</b>	<b>0.408</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.880</b>



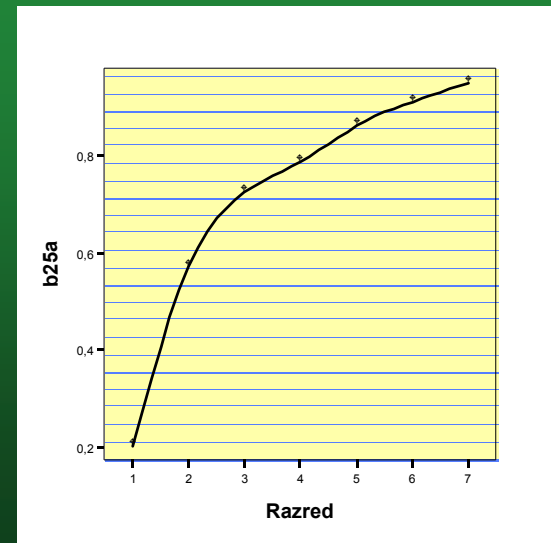
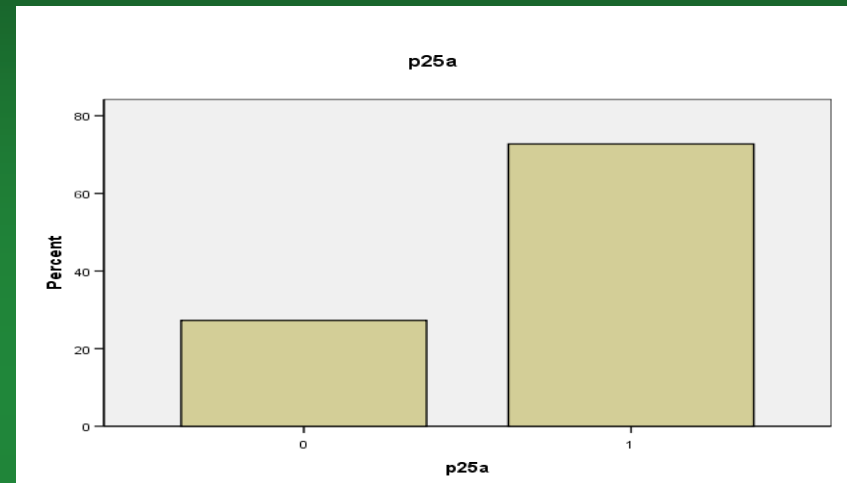
24. Neka je  $x^2 - y^2 = 75$  i  
 $x + y = 15$ .

<b>M</b>	<b>0.31</b>
<b>SD</b>	<b>0.686</b>
<b>ID</b>	<b>0.496</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.878</b>



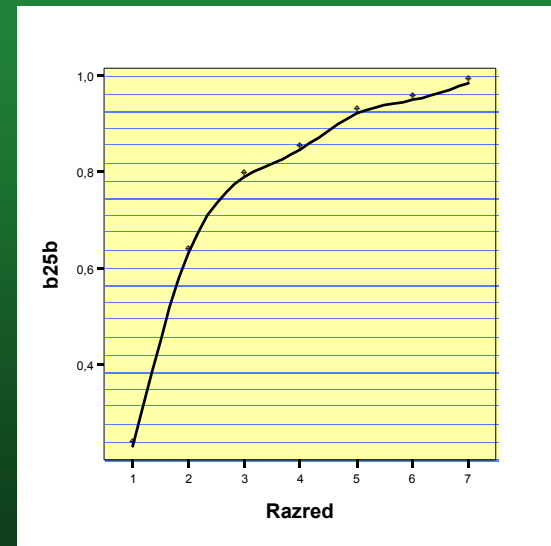
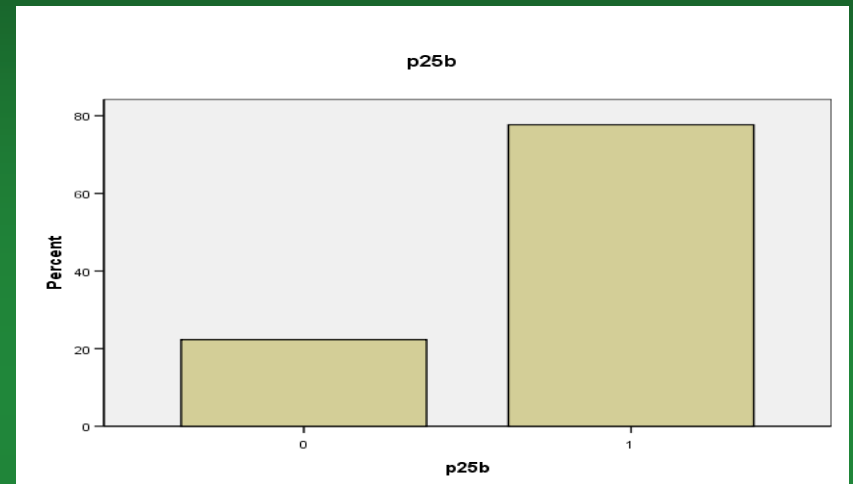
# 25a. Koliko je Ana bila visoka s 20 mjeseci života?

<b>M</b>	<b>0.72</b>
<b>SD</b>	<b>0.448</b>
<b>ID</b>	<b>0.387</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.880</b>



# 25b. Koliko je mjeseci imao Marko kada je bio visok 82 cm?

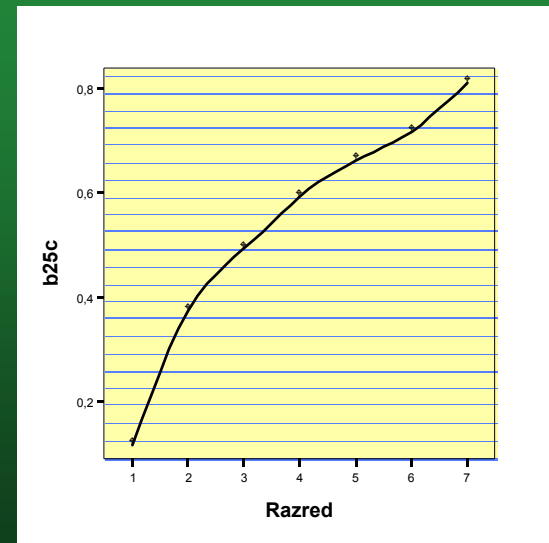
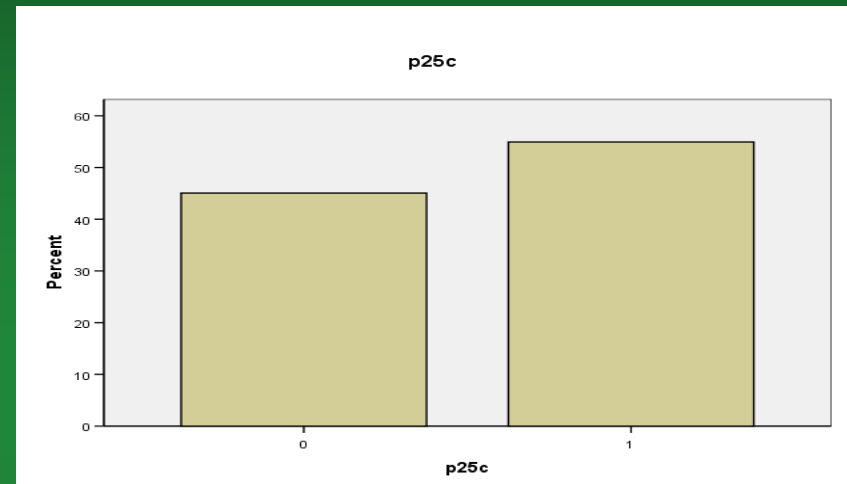
<b>M</b>	<b>0.77</b>
<b>SD</b>	<b>0.421</b>
<b>ID</b>	<b>0.408</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.880</b>





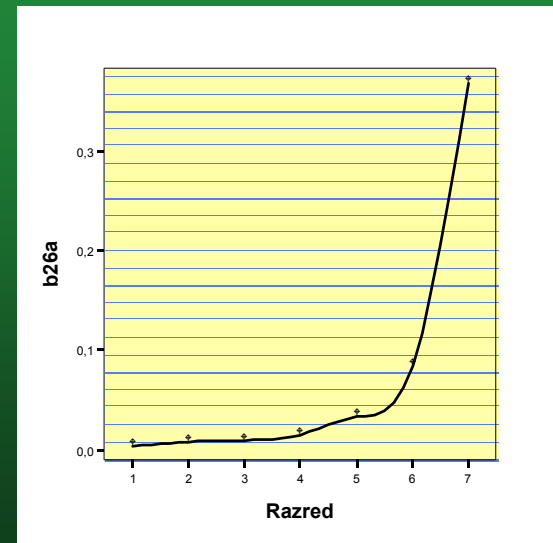
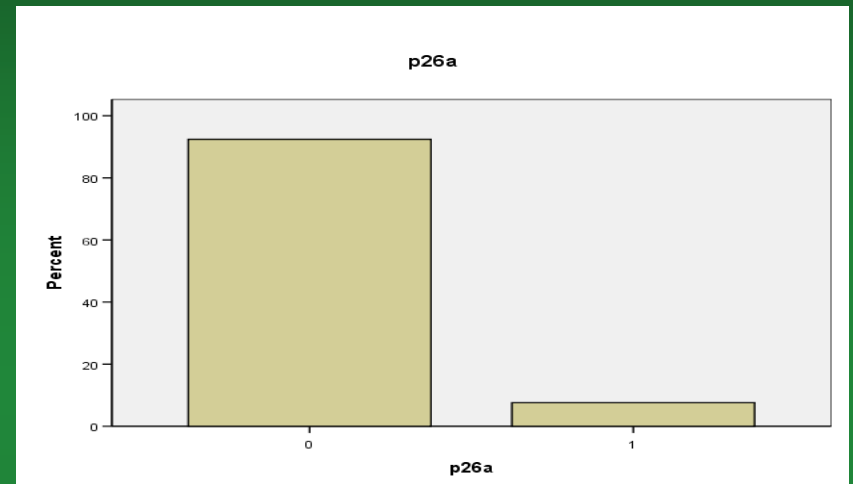
# 25c. Za koliko je Marko bio viši od Ane na njihov prvi rođendan?

<b>M</b>	<b>0.54</b>
<b>SD</b>	<b>0.498</b>
<b>ID</b>	<b>0.338</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.881</b>



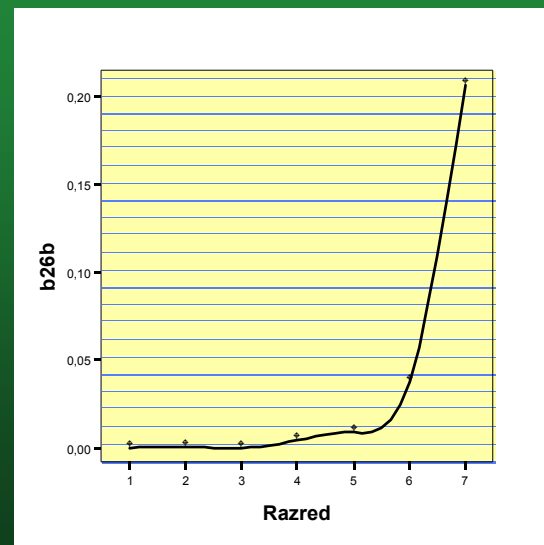
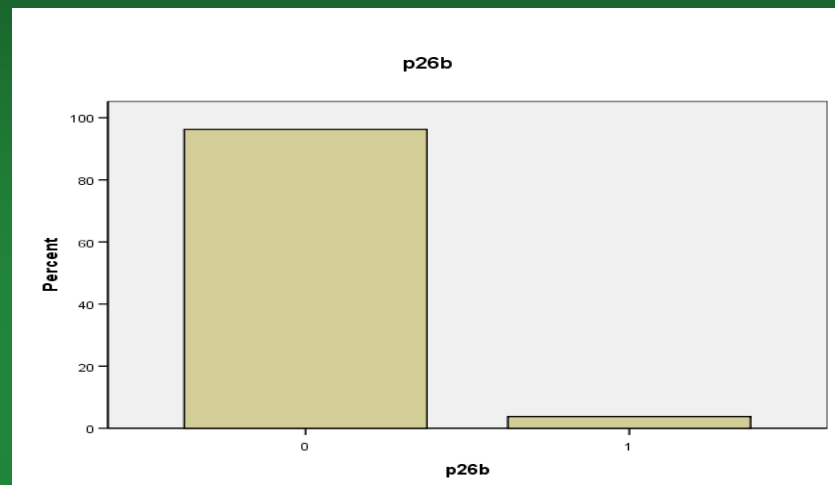
# 26a. Koliko je bilo bakterija 40 minuta nakon početka mjerenja?

<b>M</b>	<b>0.08</b>
<b>SD</b>	<b>0.264</b>
<b>ID</b>	<b>0,423</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.880</b>



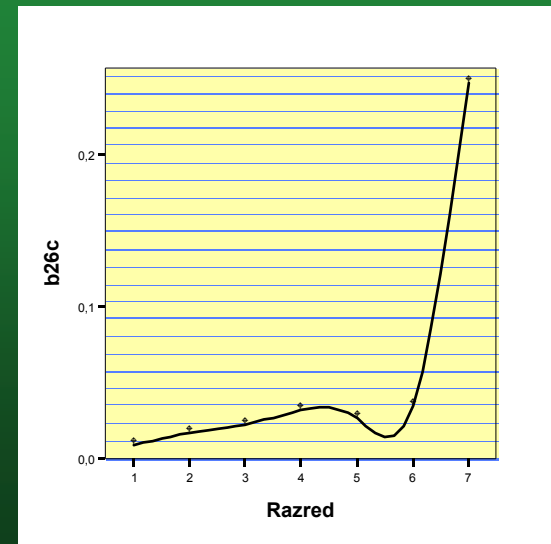
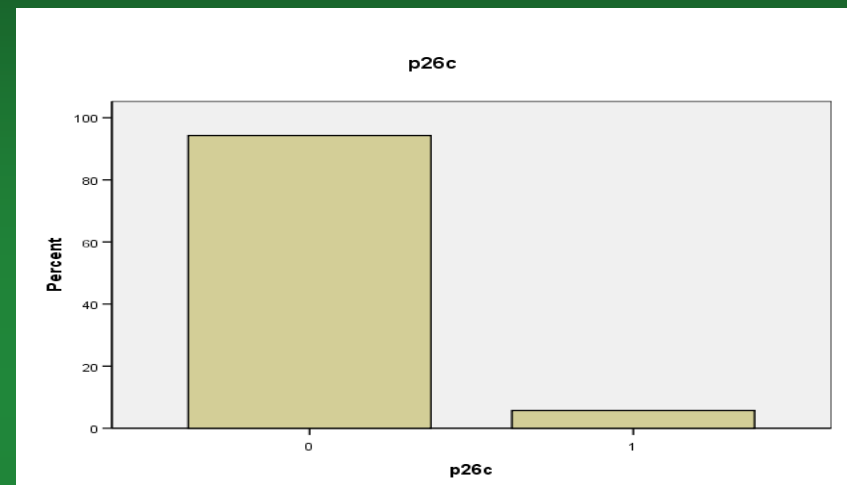
# 26b. Koliko je bilo bakterija 1 sat prije početka mjerenja?

<b>M</b>	<b>0.04</b>
<b>SD</b>	<b>0.189</b>
<b>ID</b>	<b>0.348</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.881</b>



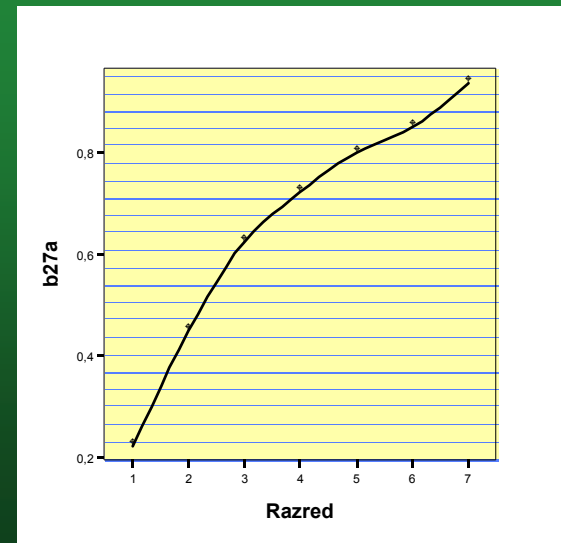
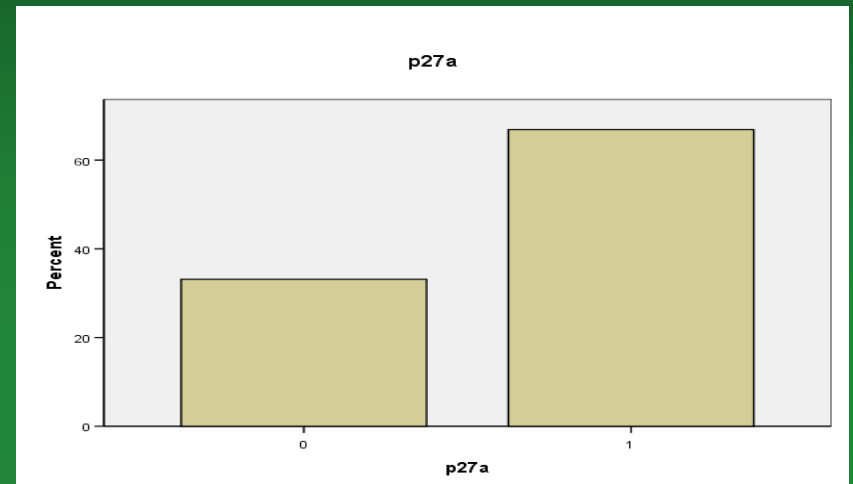
# 26c. Nakon koliko je sati bilo 4 096 000 bakterija?

<b>M</b>	<b>0.06</b>
<b>SD</b>	<b>0.231</b>
<b>ID</b>	<b>0.300</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.882</b>



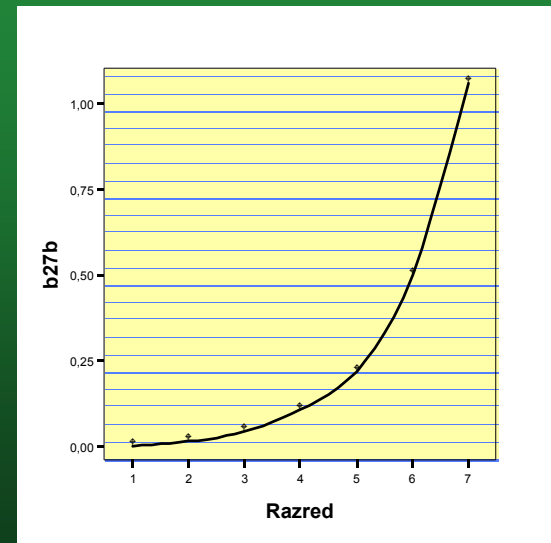
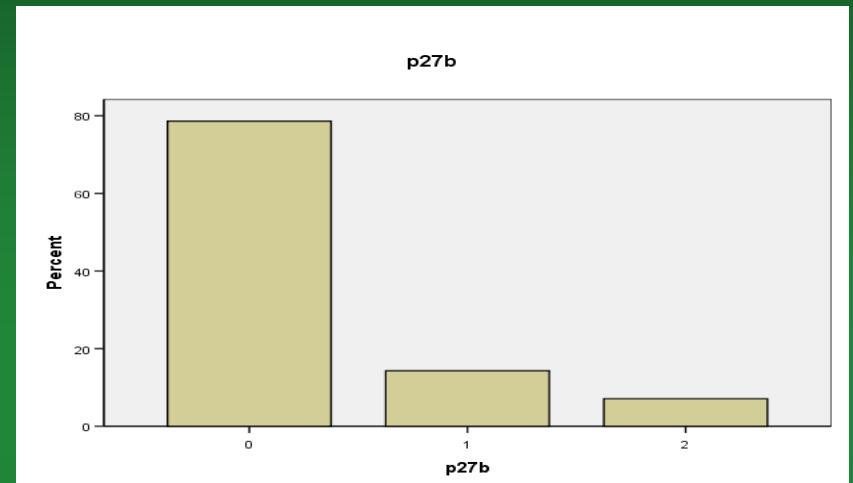
27a. Zadane točke ucrtajte u koordinatni sustav.

<b>M</b>	<b>0.66</b>
<b>SD</b>	<b>0.473</b>
<b>ID</b>	<b>0,387</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.880</b>



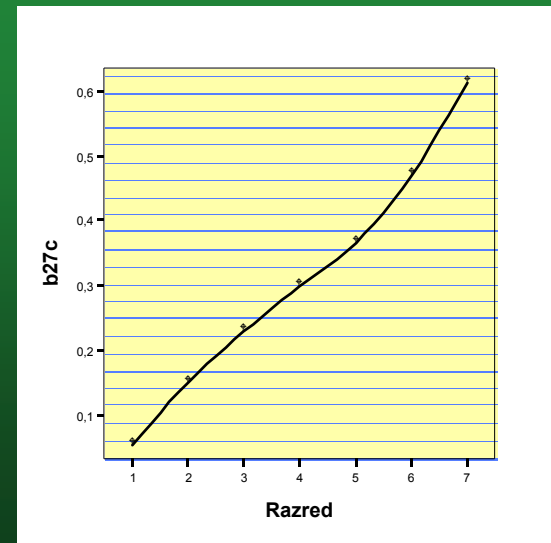
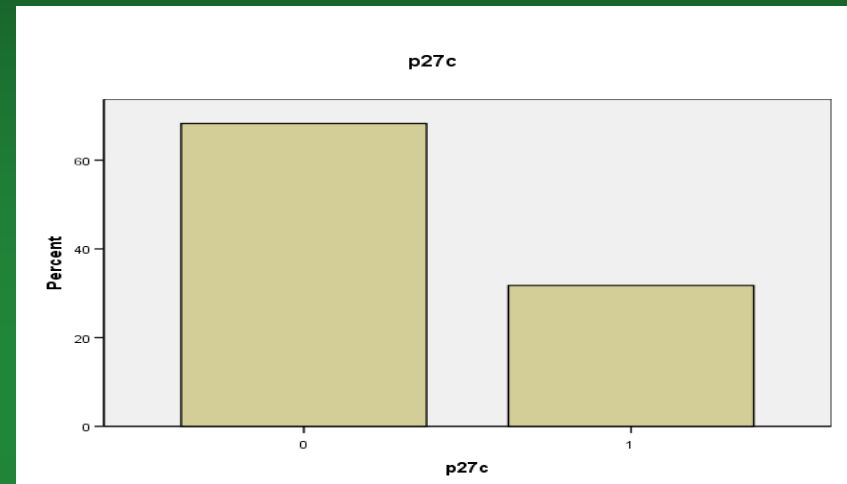
27b. Izračunajte međusobne udaljenosti točaka A, B i C te odredite broj  $|AB| + |BC| - |AC|$  zaokružen na tri decimale.

<b>M</b>	<b>0.28</b>
<b>SD</b>	<b>0.585</b>
<b>ID</b>	<b>0.553</b>
<b>α - zadatak</b>	<b>0.876</b>



27c. Leže li točke A, B, C na istome pravcu?

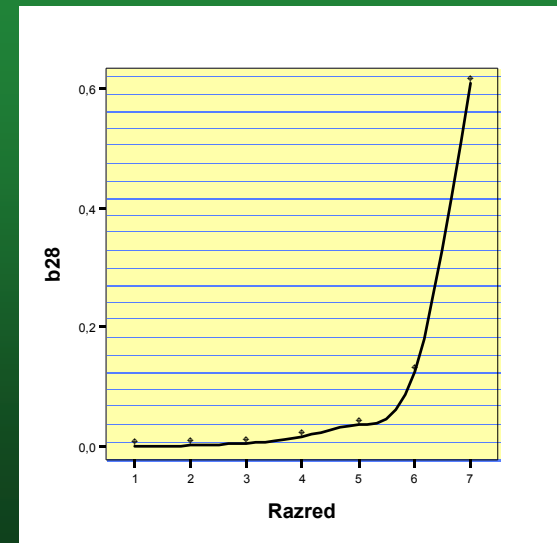
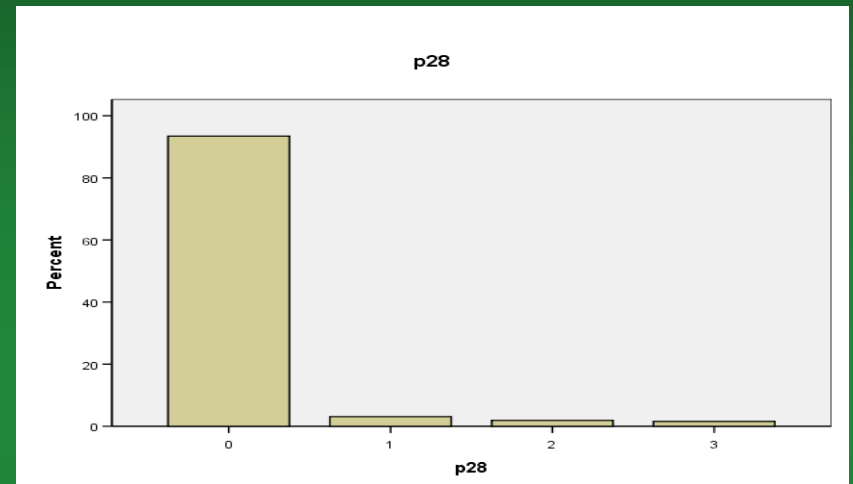
<b>M</b>	<b>0.31</b>
<b>SD</b>	<b>0.464</b>
<b>ID</b>	<b>0.333</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.881</b>



28. U koordinatnome sustavu prikažite graf funkcije

$$f(x) = -(x + 1)(x - 3).$$

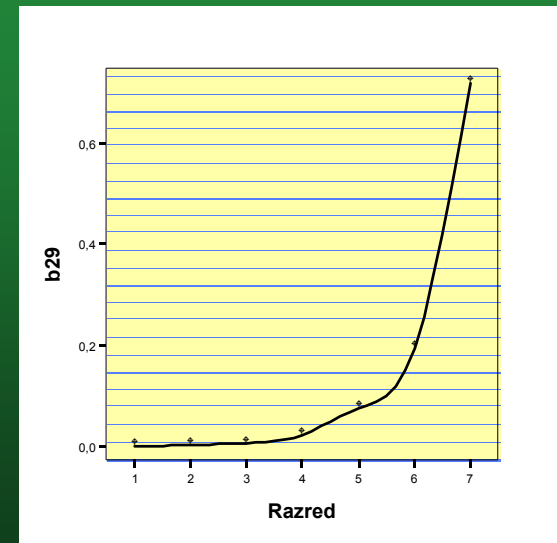
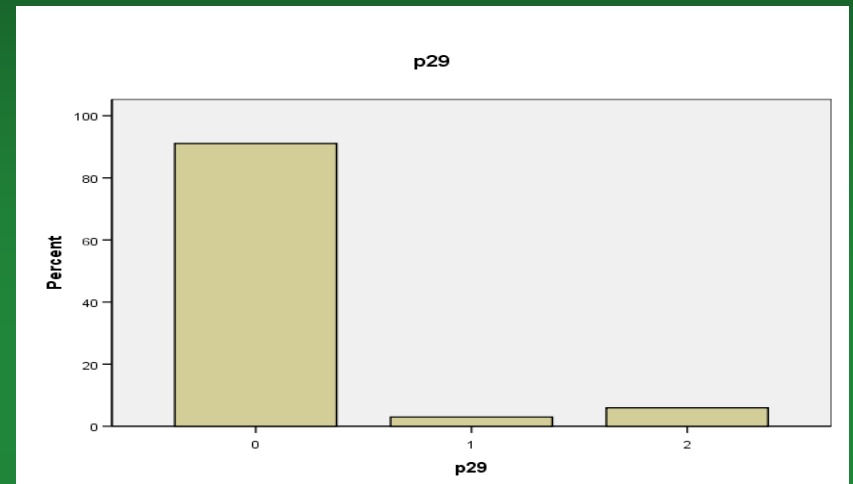
<b>M</b>	<b>0.11</b>
<b>SD</b>	<b>0.481</b>
<b>ID</b>	<b>0.385</b>
<b>α - zadatak</b>	<b>0.880</b>





29. Koliko je grama željeza potrebno za izradbu jedne kovanice od 50 lipa?

<b>M</b>	<b>0.15</b>
<b>SD</b>	<b>0.493</b>
<b>ID</b>	<b>0,435</b>
<b><math>\alpha</math> - zadatak</b>	<b>0.879</b>





- Većina zadataka u kategoriji vrlo teških i srednje teških
- FA: 1 faktor; 21,3 % varijance