

MATEMATIKA – OSNOVNA RAZINA

Rezultati probne državne mature

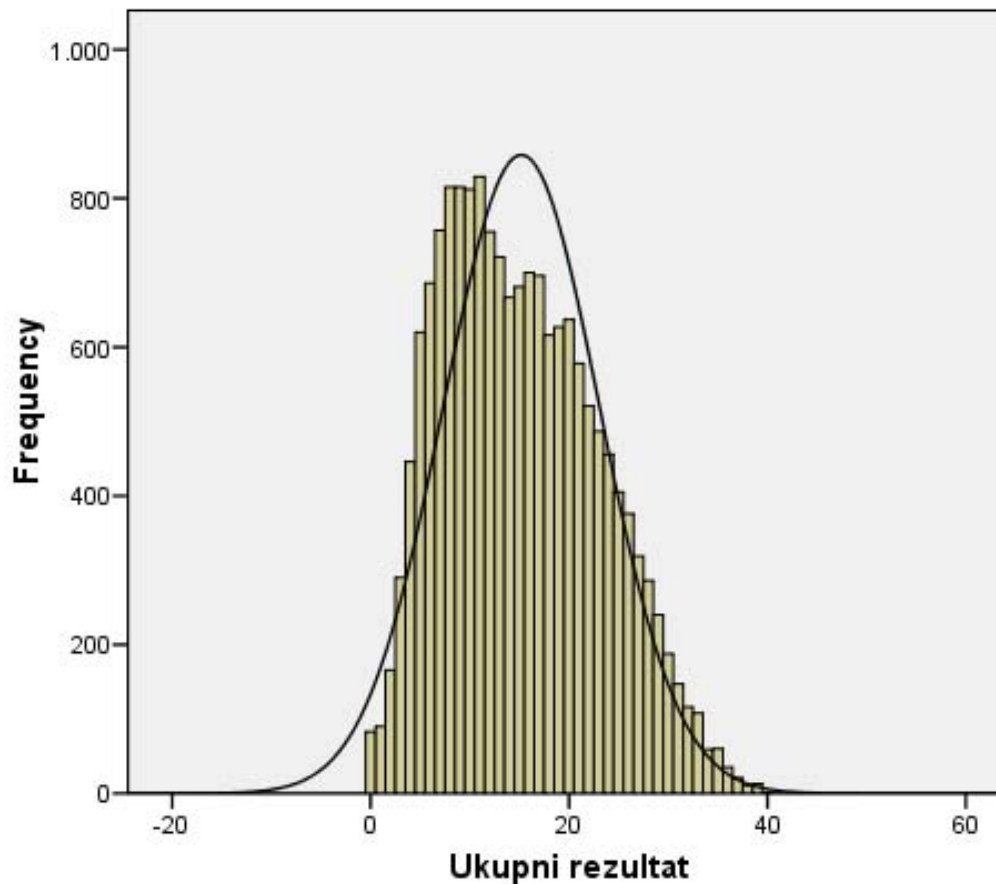
Deskriptivna statistika ukupnog rezultata

N		11219
k		33
M		18,5
St. pogreška mjerenja		3,08
Medijan		18
Mod		20
St. devijacija		7,20
Raspon		40
Minimum		0
Maksimum		40
Percentili	25	13
	50	18
	75	24
Cronbachov α		0,82

Ukupan N je 16936, ali izbacili smo učenike koji od 17. do 33. zadatka imaju $8 \geq 55$ (66 %).

Deskriptivna statistika ukupnog rezultata (svi učenici)

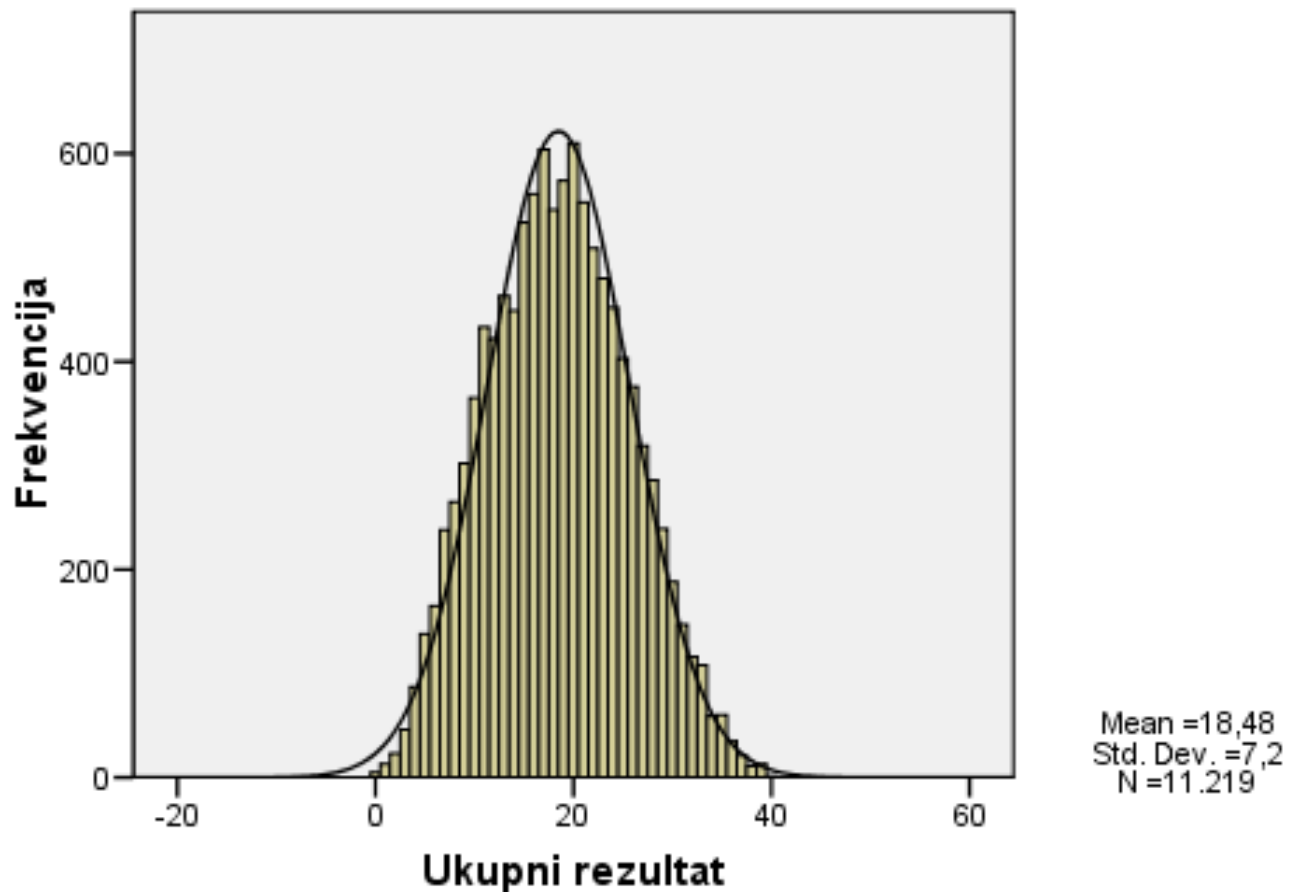
Histogram



Mean =15,19
Std. Dev. =7,869
N =16.936

Deskriptivna statistika ukupnog rezultata

Histogram



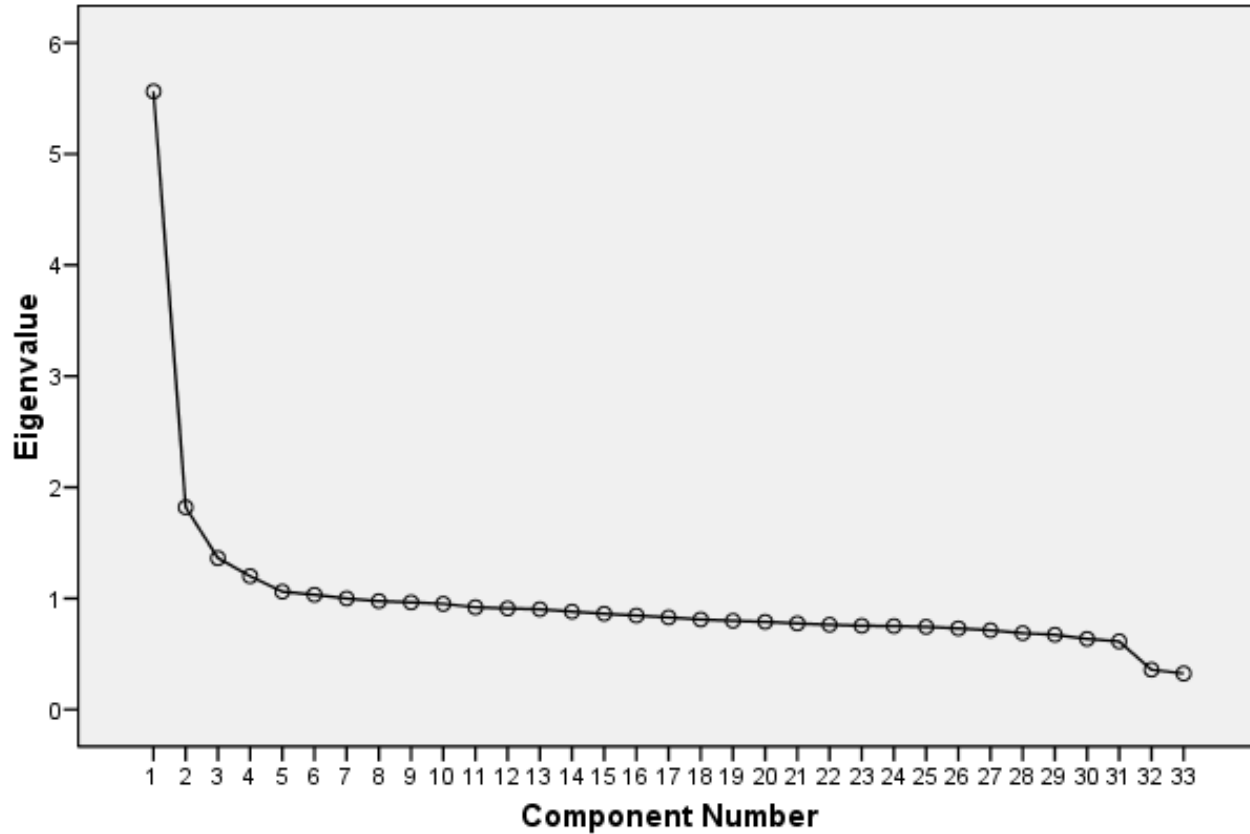


Pragovi ocjena i postotak učenika koji su
dobili pojedinu ocjenu

	1	2	3	4	5
Prag	-	11	19	25	31
%	33	33,5	19,5	10,7	3,3



Scree Plot



- 1 faktor, objašnjava 17% varijance



Težina zadatka	Redni broj zadataka
Vrlo težak (0 – 0,2)	14, 20, 23, 25.2
Težak (0,21 – 0,4)	4, 6, 8, 10, 16, 17, 27.3, 28.1, 28.2
Srednje težak (0,41 – 0,6)	9, 11, 12, 13, 21, 24, 26.2, 27.1, 27.2
Lagan (0,61 – 0,80)	2, 3, 5, 7, 15, 18, 19, 22, 25.1, 26.1
Vrlo lagan (0,81 – 1)	1

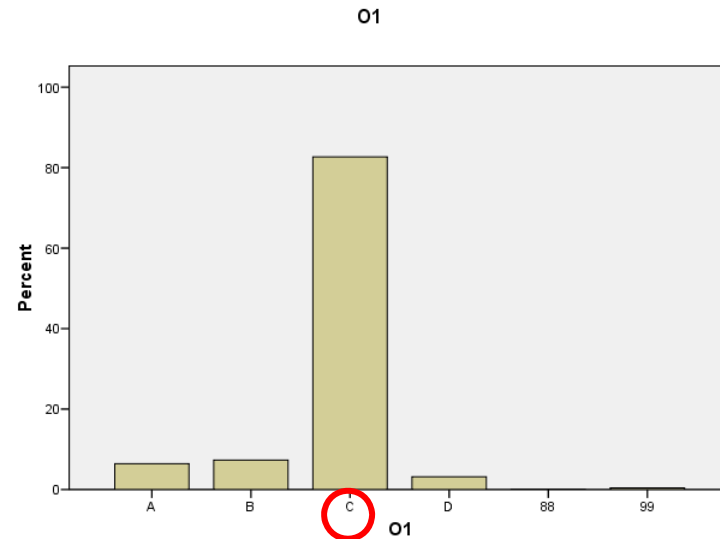
MATEMATIKA

Osnovna razina

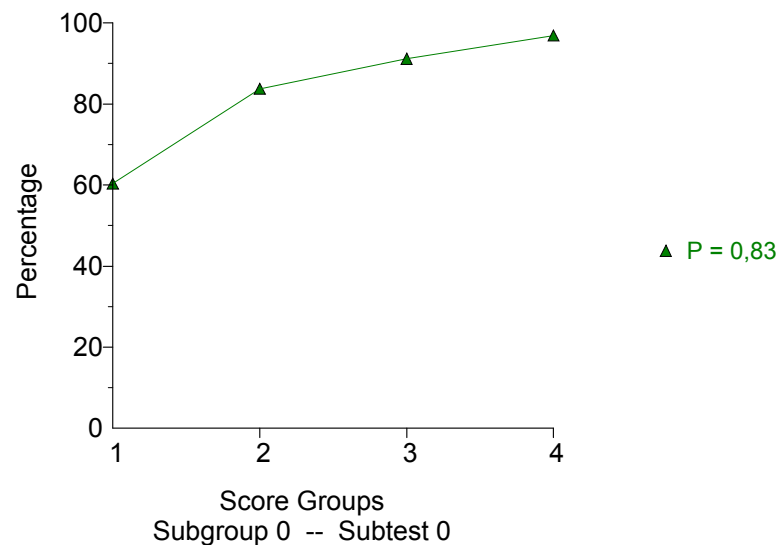
I. Zadaci višestrukoga
izbora

1. Koju vrijednost ima razlomak $\frac{630}{231}$?

M	0,83
M (O)	
ID	0,34



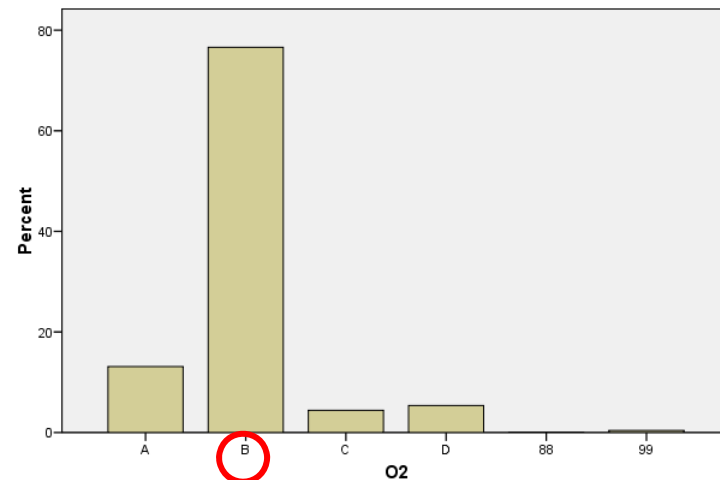
Item 1 B1 Rit = 0,38



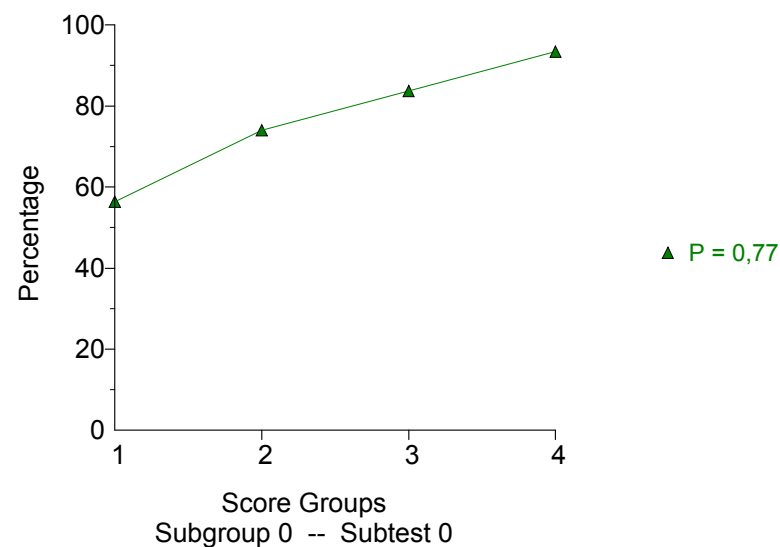
2. Na CD-u kapaciteta 700 Mb snimljeni su sadržaji od 139 Mb.

02

M	0,77
M (O)	
ID	0,29



Item 2 B2 Rit = 0,34

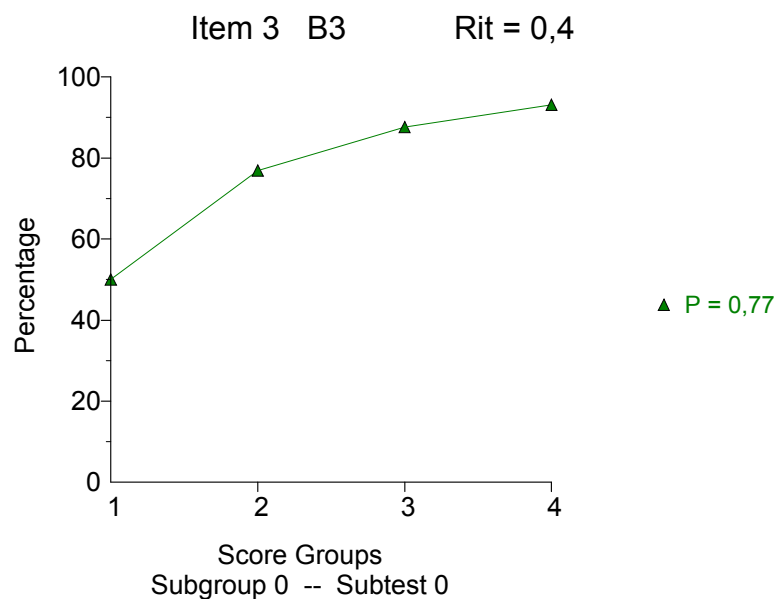
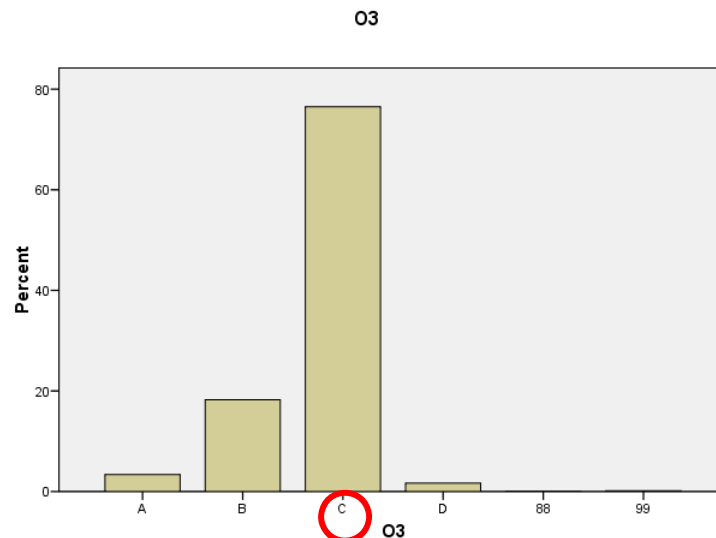




3. Izraz $(3m-2)^2$ jednak je:

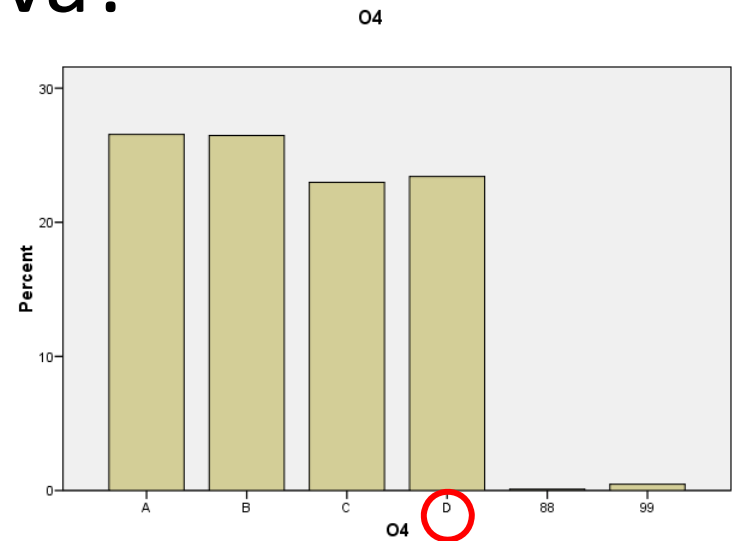
NACIONALNI CENTAR ZA VANJSKO
VREDNOVANJE OBRAZOVANJA

M	0,77
M (O)	
ID	0,35

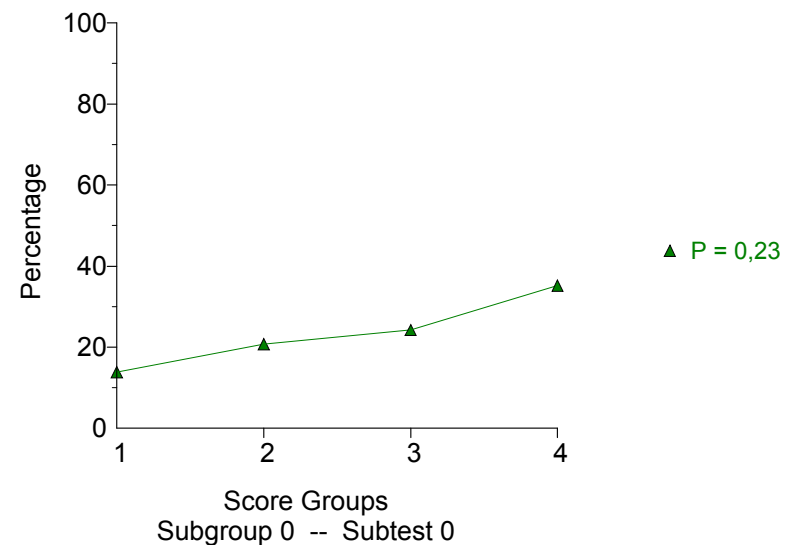


4. Koji od brojeva pripada skupu iracionalnih brojeva?

M	0,23
M (O)	
ID	0,15

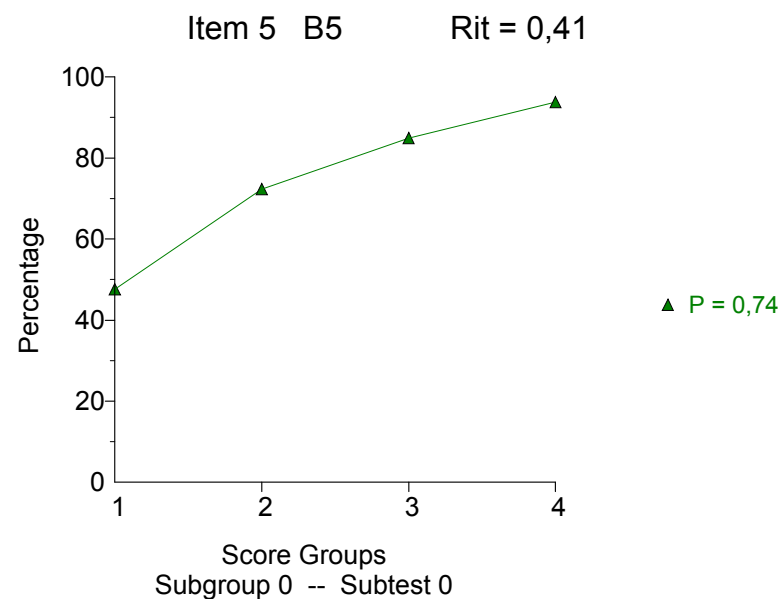
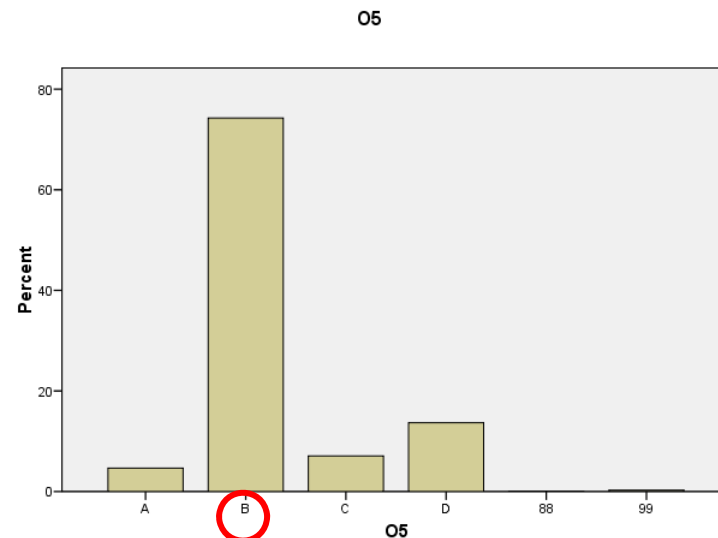


Item 4 B4 Rit = 0,21



5. Ako je $9x + 3y - 4 = 0$, koliko je y ?

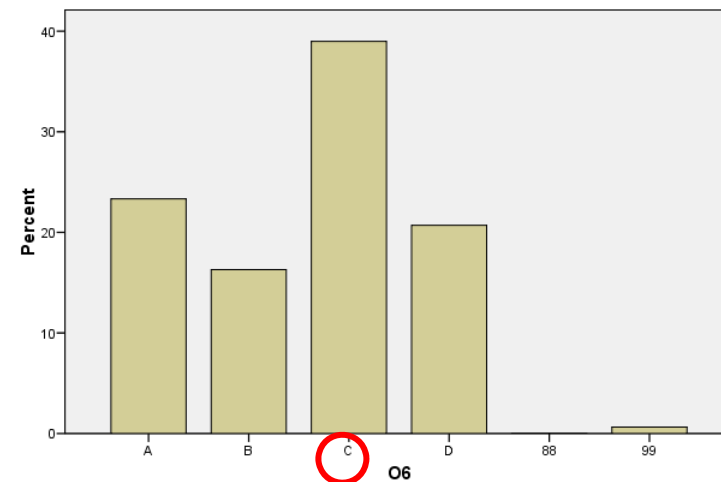
M	0,74
M (O)	
ID	0,36



6. Koliki je interval rješenje nejednadžbe $1 - 2x < 3$?

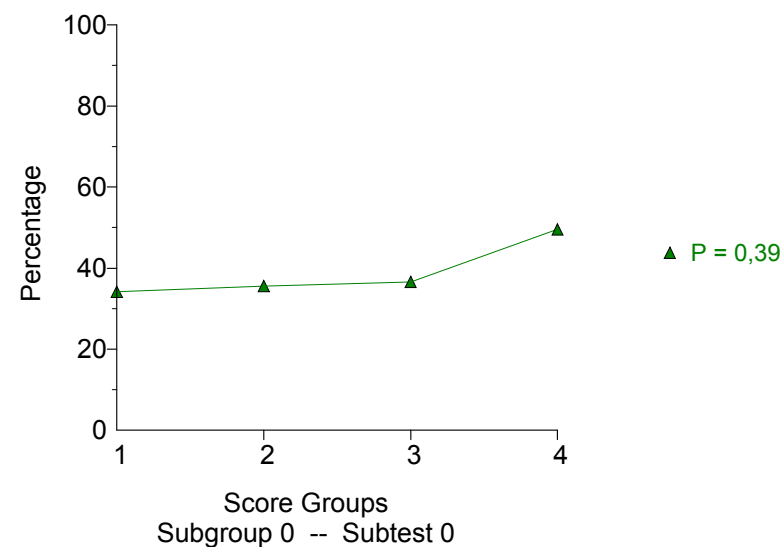
06

M	0,39
M (O)	
ID	0,06



Item 6 B6

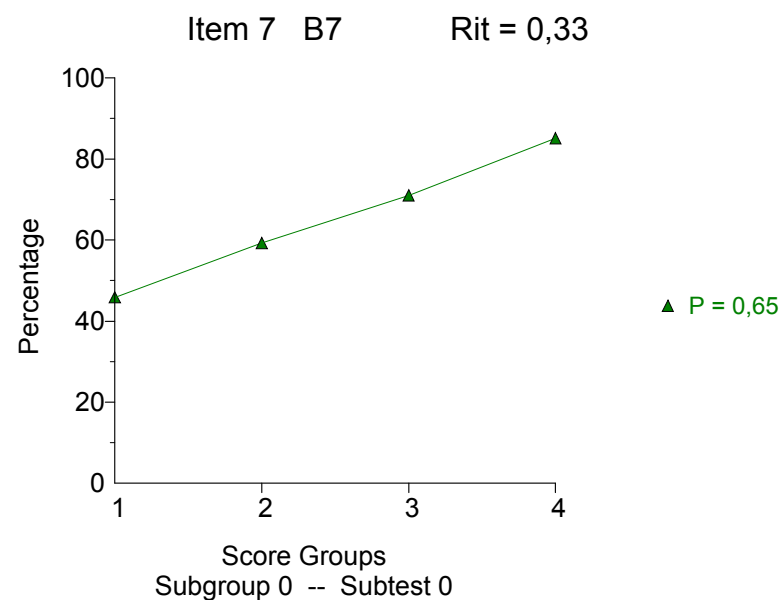
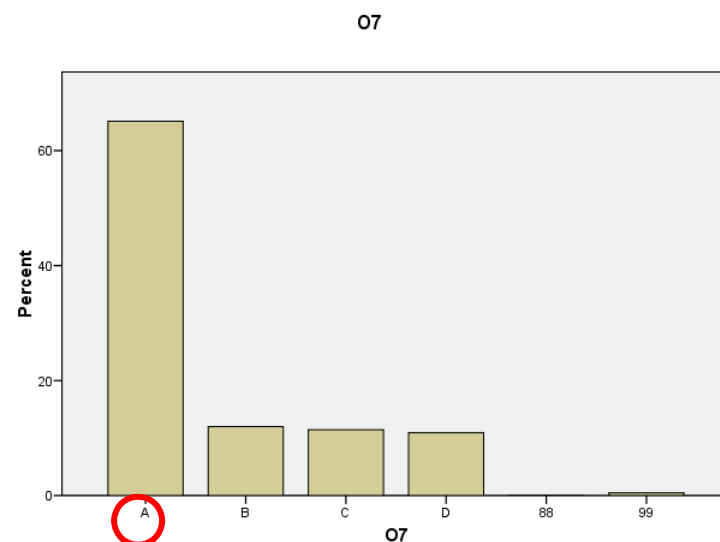
Rit = 0,13



7. Koji graf prikazuje funkciju

$$f(x) = 2x - 1?$$

M	0,65
M (O)	
ID	0,27

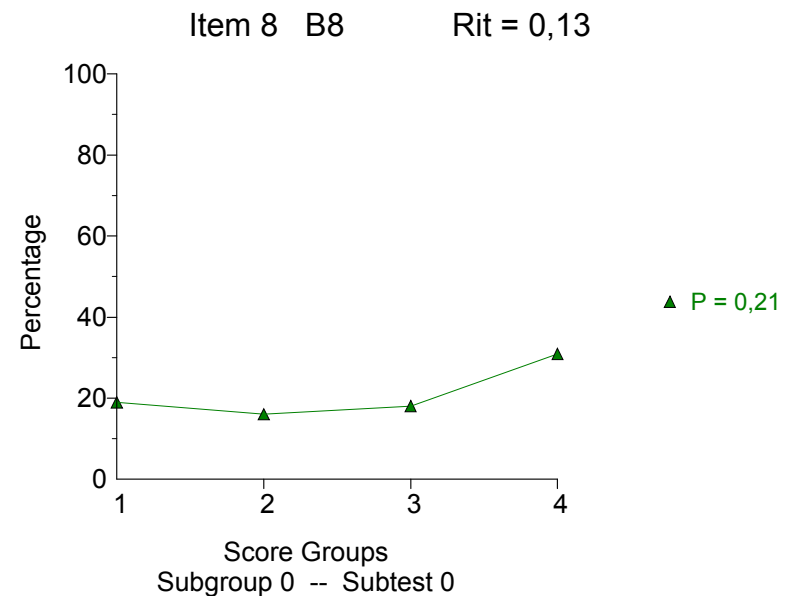
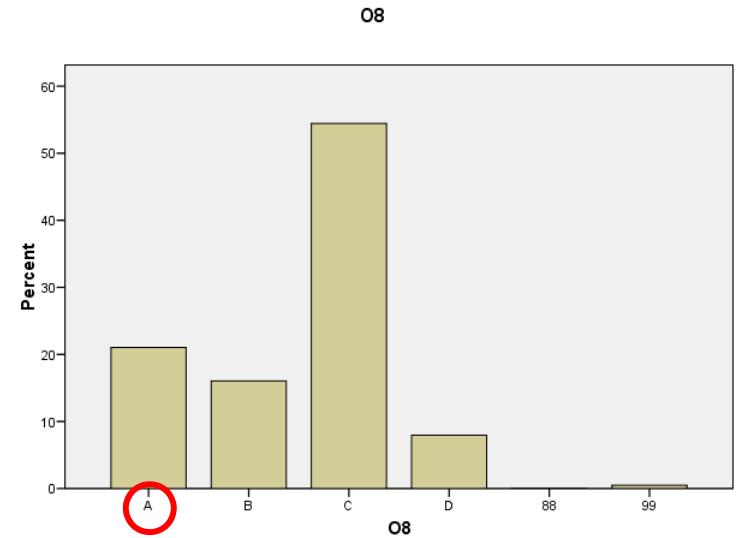




8. Koliki je rezultat oduzimanja

$$3 - \frac{1 + 2a}{a} ?$$

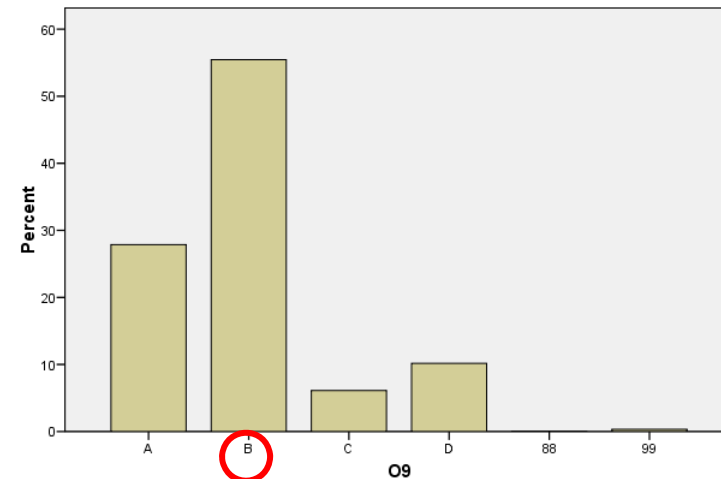
M	0,21
M (O)	
ID	0,08



9. $18^{\circ}12'$ jednako je:

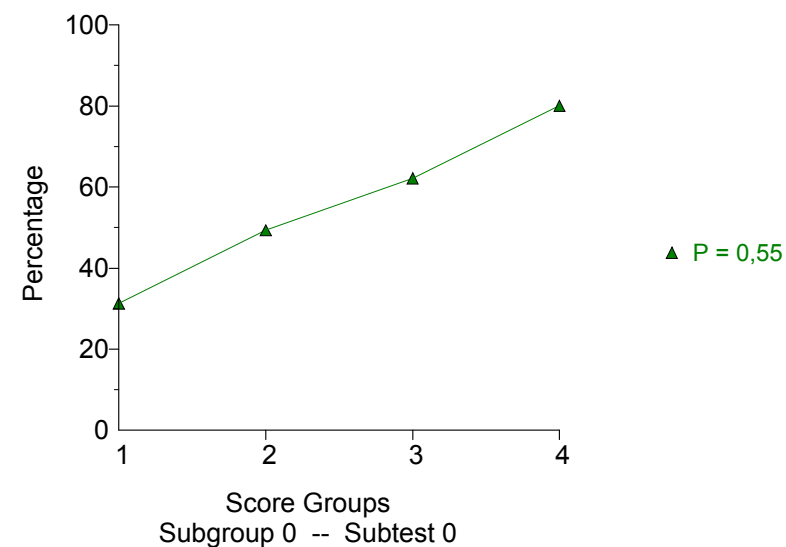
09

M	0,55
M (O)	
ID	0,32



Item 9 B9

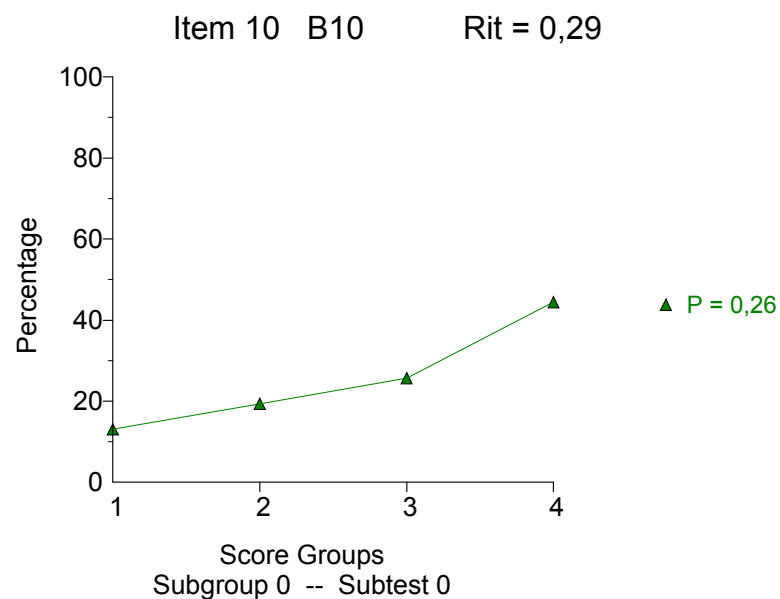
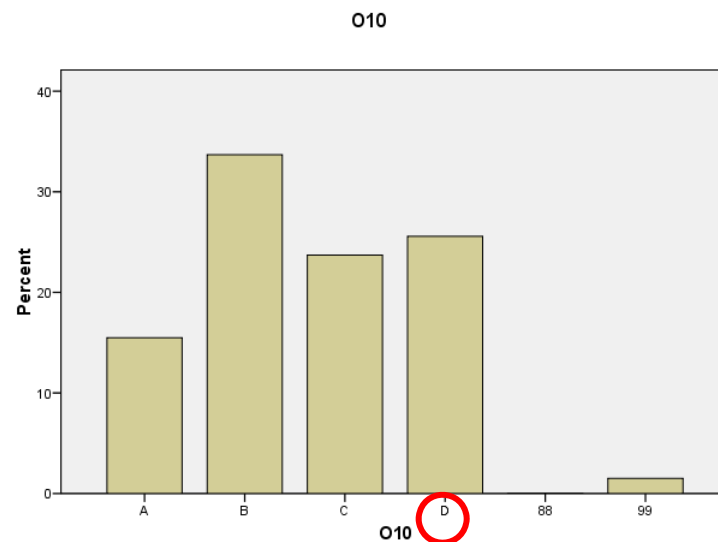
Rit = 0,38



Score Groups
Subgroup 0 -- Subtest 0

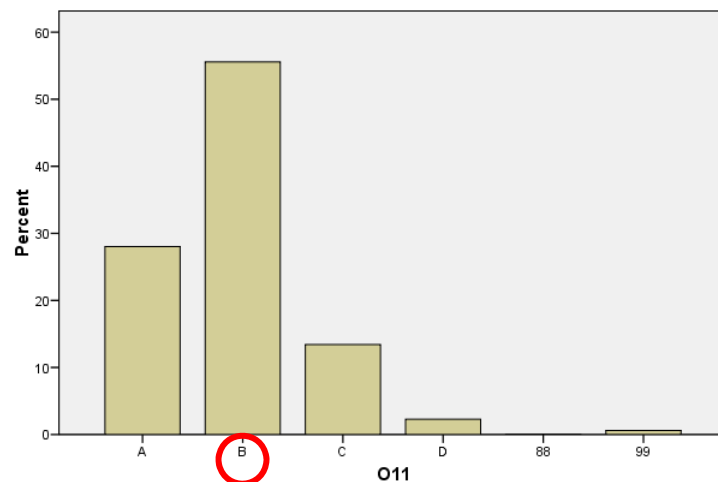
10. Koju funkciju prikazuje sljedeći graf?

M	0,26
M (O)	
ID	0,23

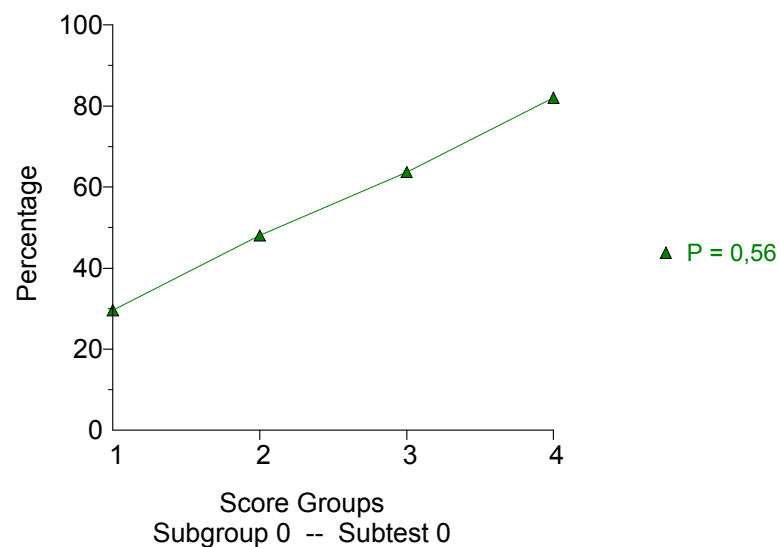


11. Baza uspravne četverostrane piramide je kvadrat duljine stranice 6cm.

M	0,56
M (O)	
ID	0,35



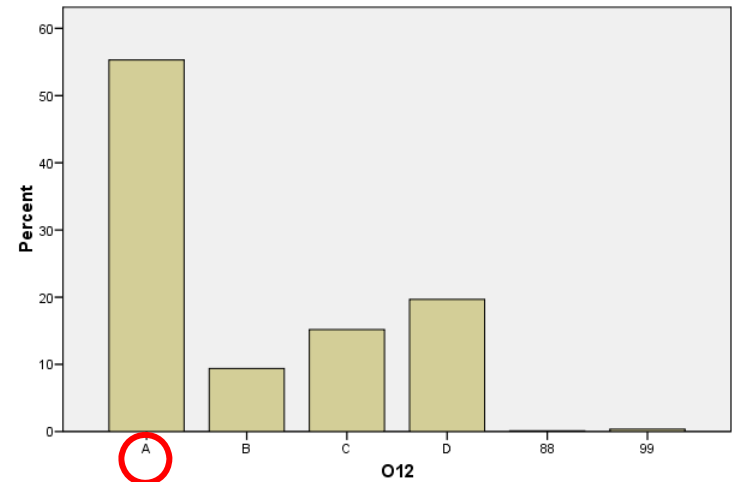
Item 11 B11 Rit = 0,41



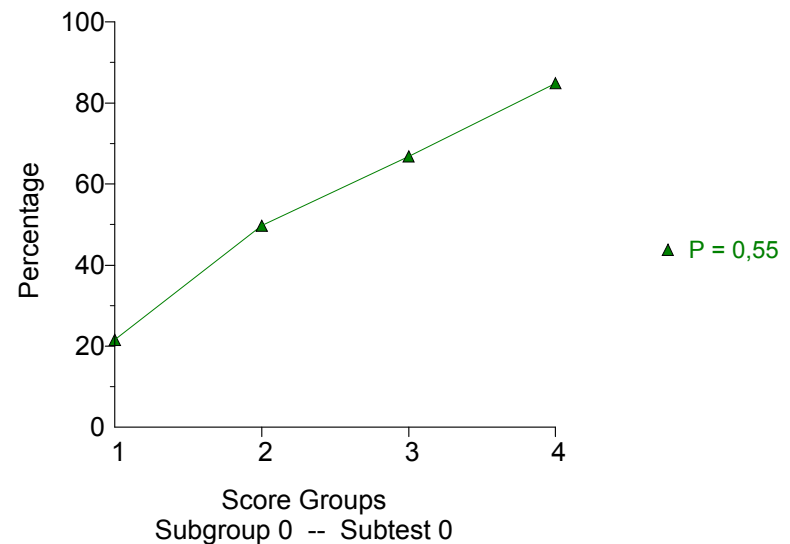


12. U jednađbi $100 \cdot 10^x = 0.01$,
nepoznanica x jednaka je: 012

M	0,55
M (O)	
ID	0,43



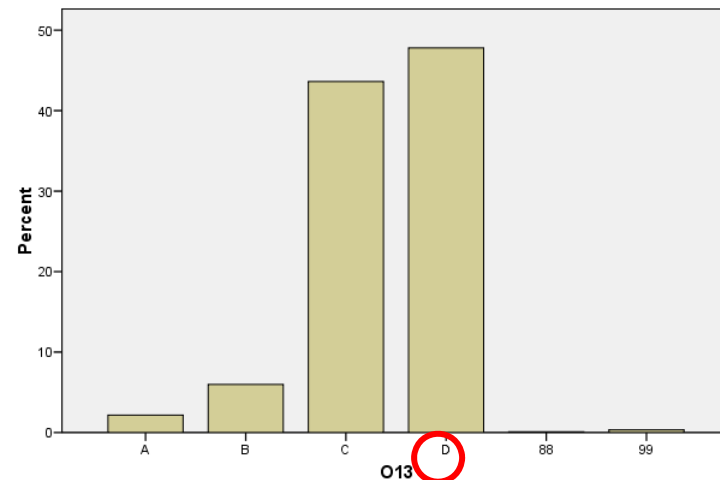
Item 12 B12 Rit = 0,49



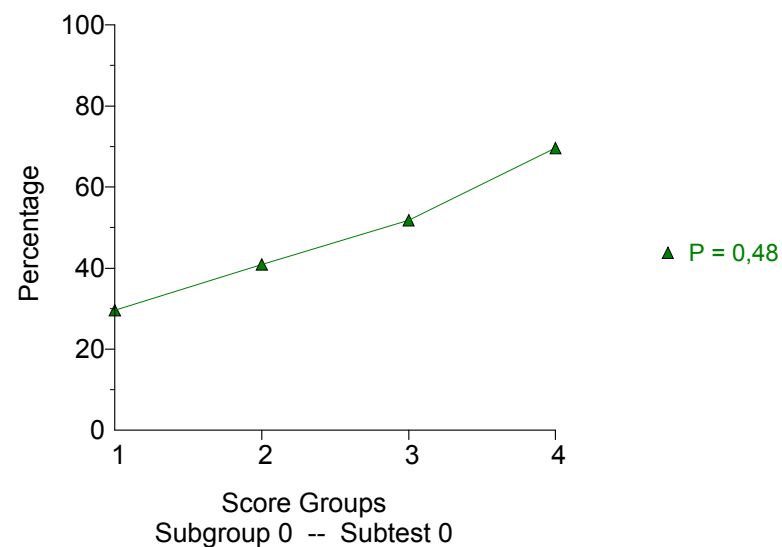
13. U javnoj garaži parkiranje se naplaćuje prema sljedećoj tarifi...

013

M	0,96 (0,48)
M (O)	
ID	0,19



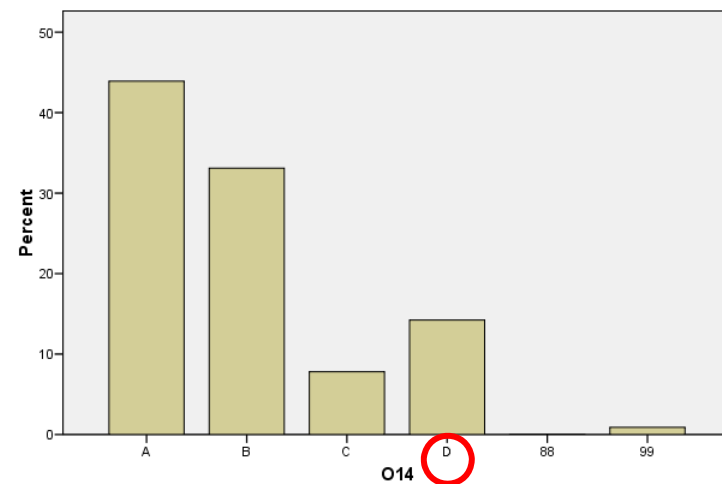
Item 13 B13 Rit = 0,32



14. Stranice pravokutnika na zemljovidu mjerila 1:50 000 iznose...

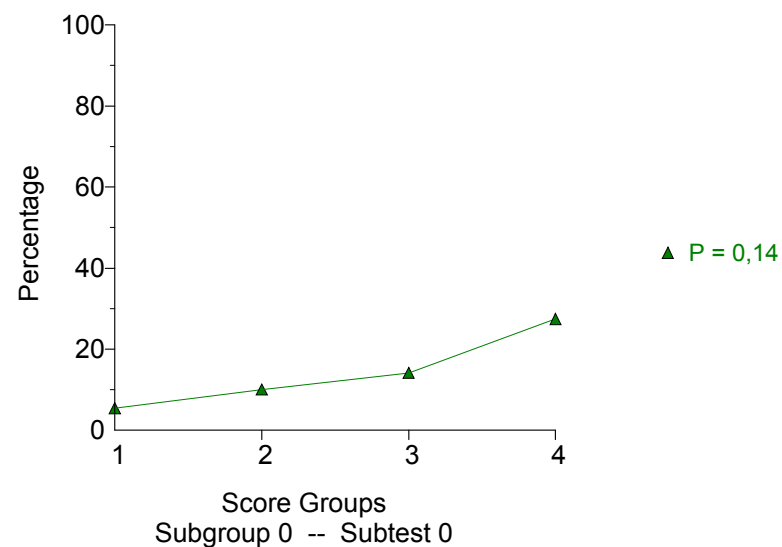
014

M	0,28 (0,14)
M (O)	
ID	0,17



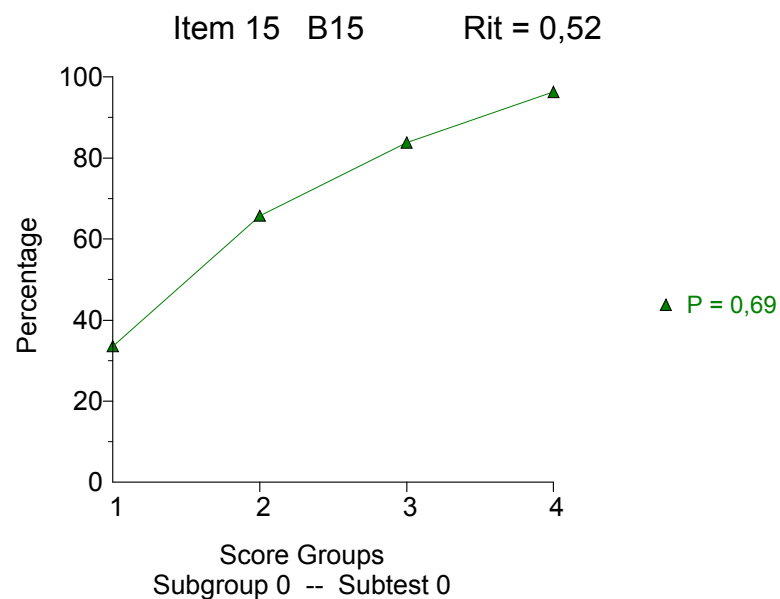
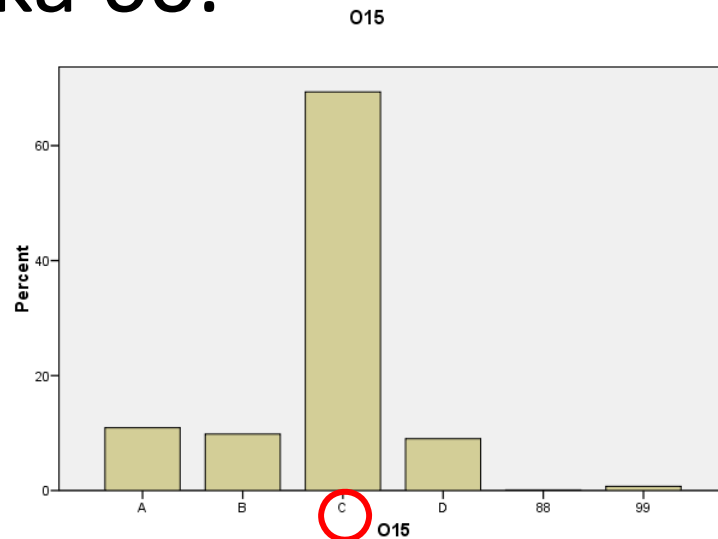
Item 14 B14

Rit = 0,27



15. Zbroj dvaju cijelih brojeva je 96,
a njihova je razlika 60.

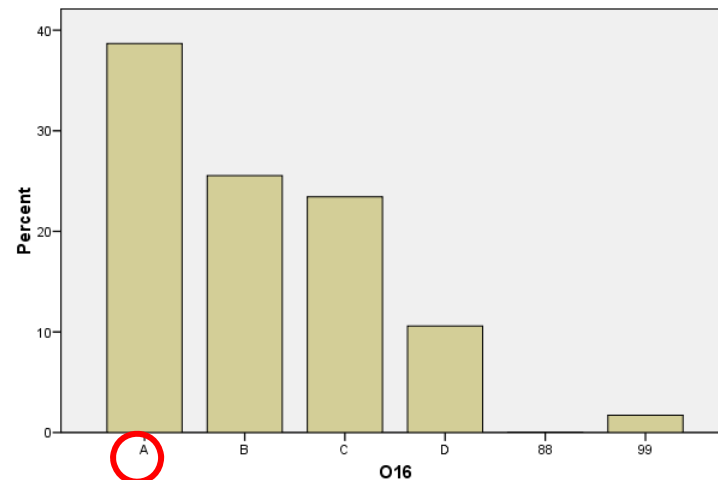
M	1,39 (0,69)
M (O)	
ID	0,42



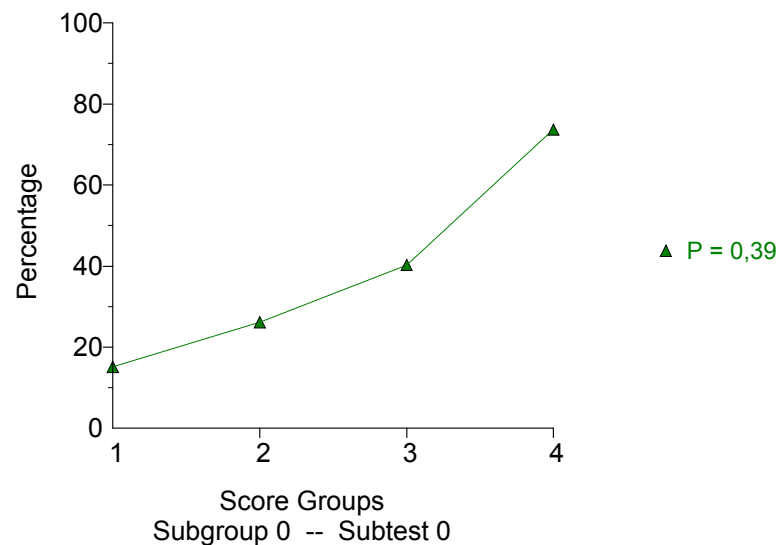
16. Svemirska sonda putuje prema planeti udaljenoj $4 \cdot 10^9$ km od Zemlje.

016

M	0,77 (0,39)
M (O)	
ID	0,35



Item 16 B16 Rit = 0,47

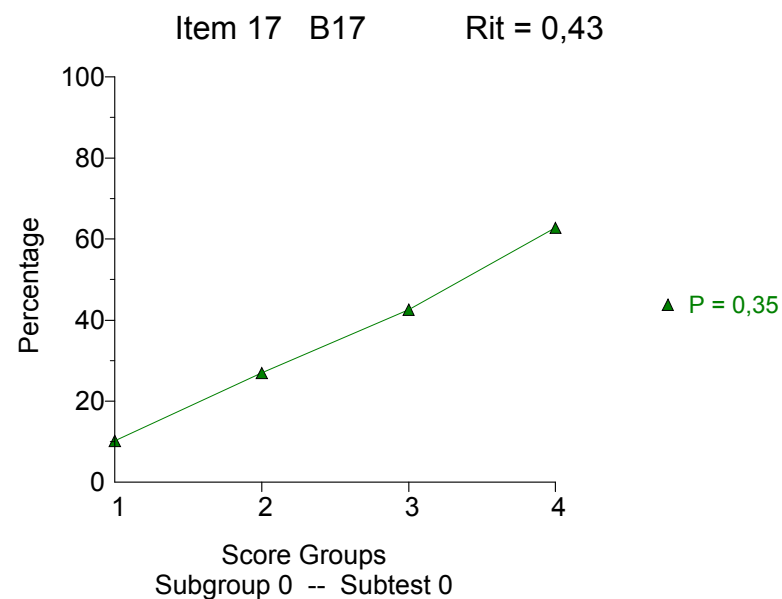
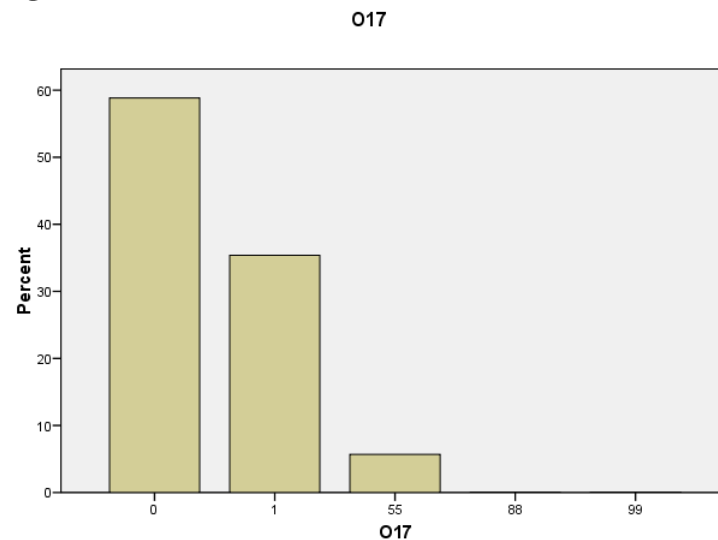


II. Zadatci kratkih odgovora

17. Izračunajte vrijednost izraza

$$\frac{1 + 3 \cdot (1.5 - 1)}{0.1 - 2\frac{3}{5}}$$

M	0,35
M (O)	
ID	0,37

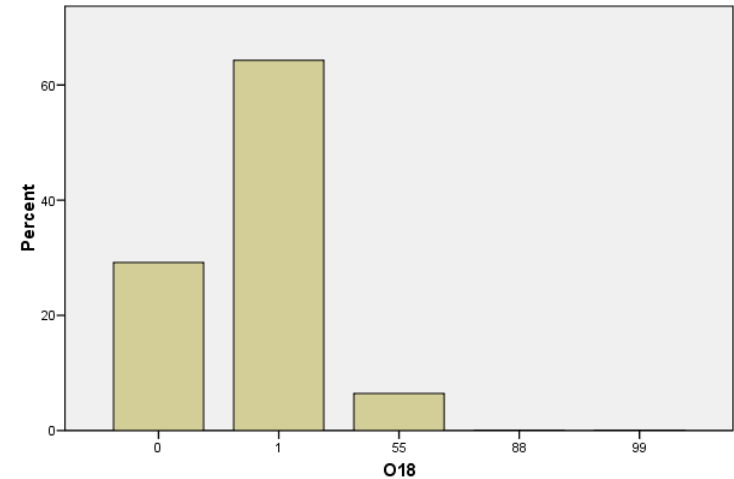


18. Riješite jednadžbu

$$5x - \frac{1}{2} = \frac{5}{2} - x$$

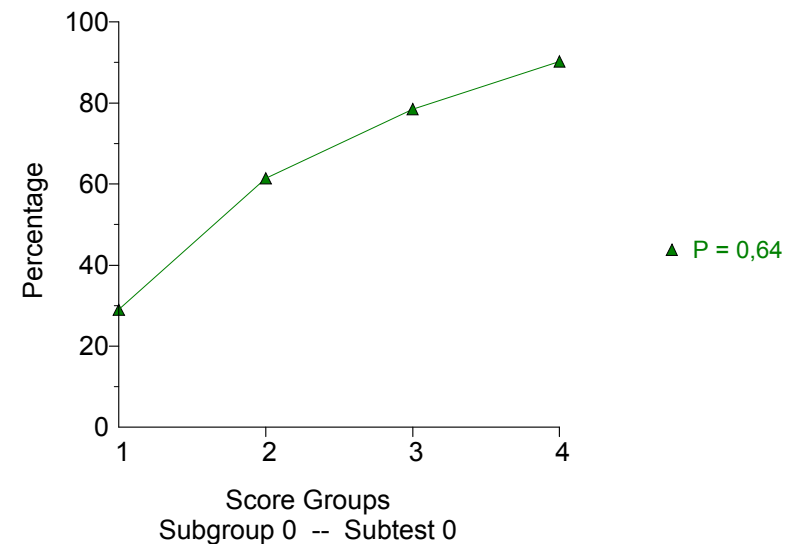
M	0,64
M (O)	
ID	0,44

O18



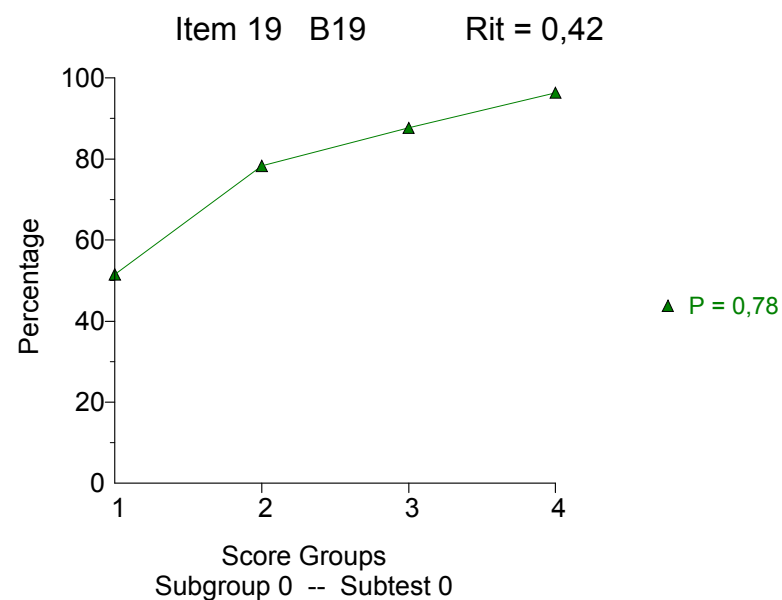
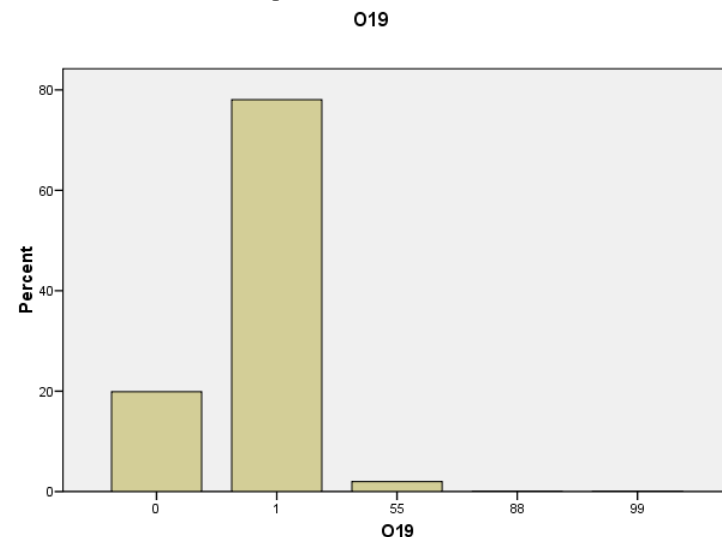
Item 18 B18

Rit = 0,5



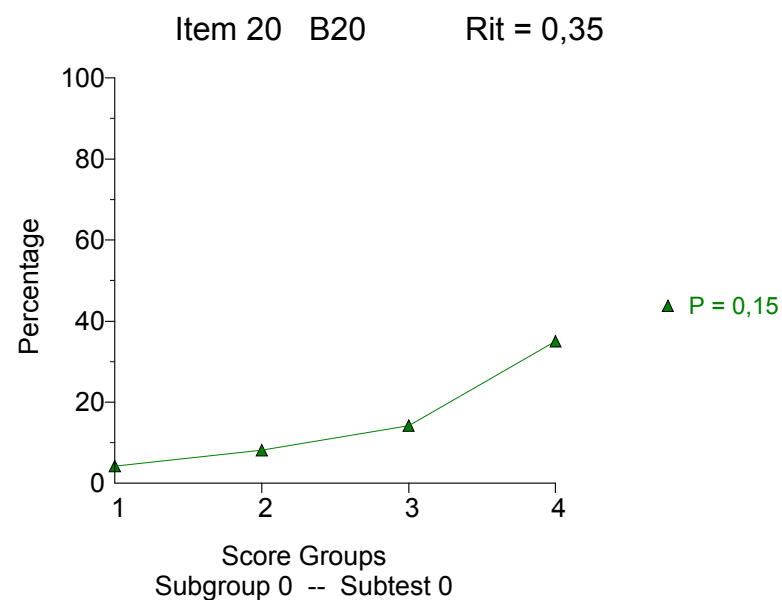
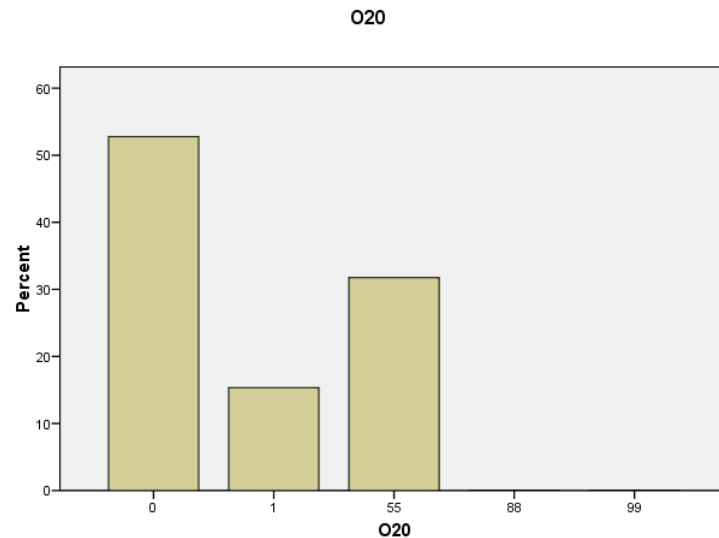
19. Filip je platio 3 kg jabuka 16 kuna i 50 lipa. Koliko će platiti za 8 kg jabuka?

M	0,78
M (O)	
ID	0,37



20. Odredite površinu P trokuta ABC na slici.

M	0,15
M (O)	
ID	0,31

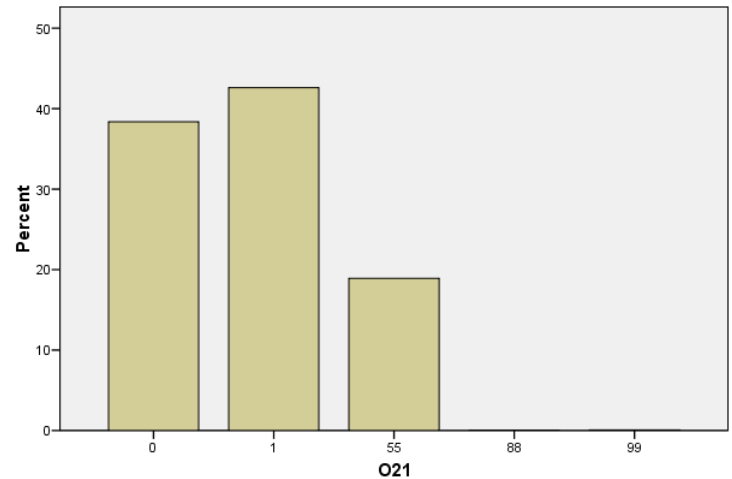


21. U koordinatnome sustavu prikažite graf linearne funkcije

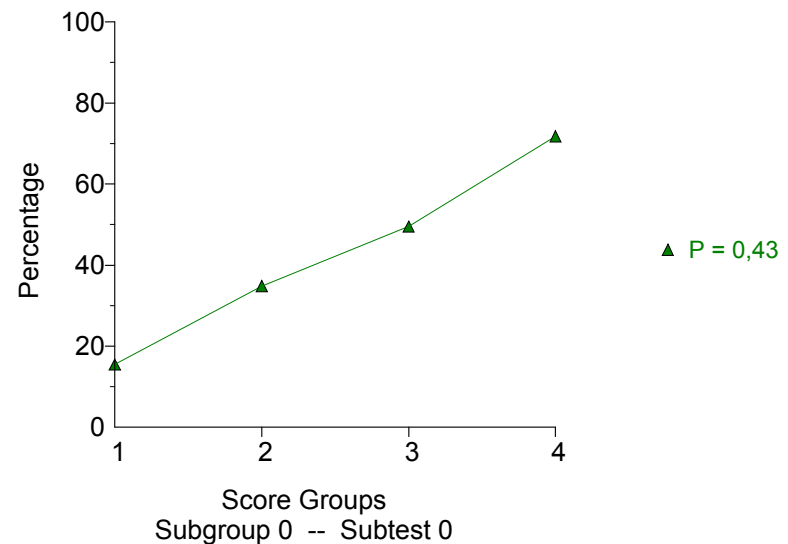
$$f(x)=x-2.$$

021

M	0,43
M (O)	
ID	0,38



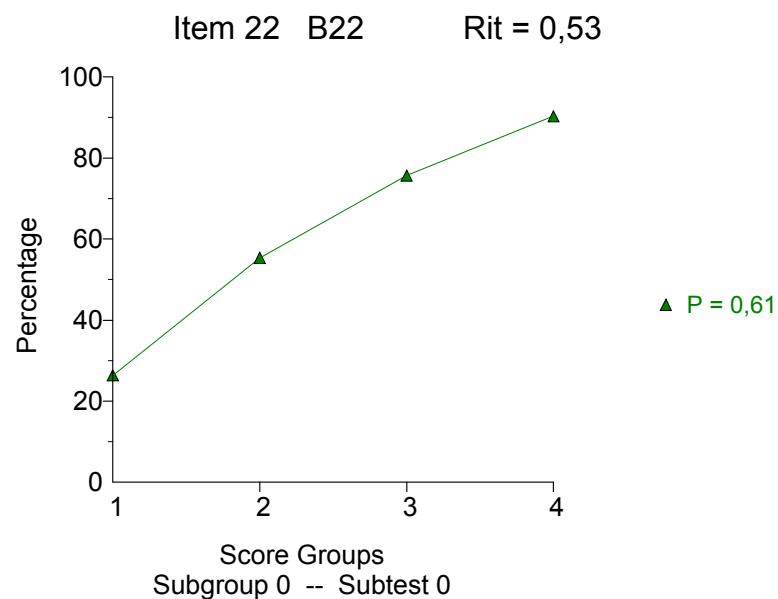
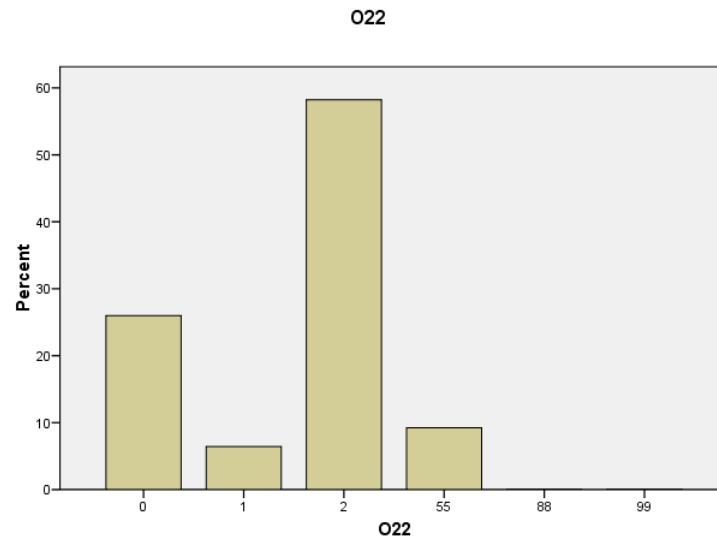
Item 21 B21 Rit = 0,44



22. Riješite kvadratnu jednadžbu

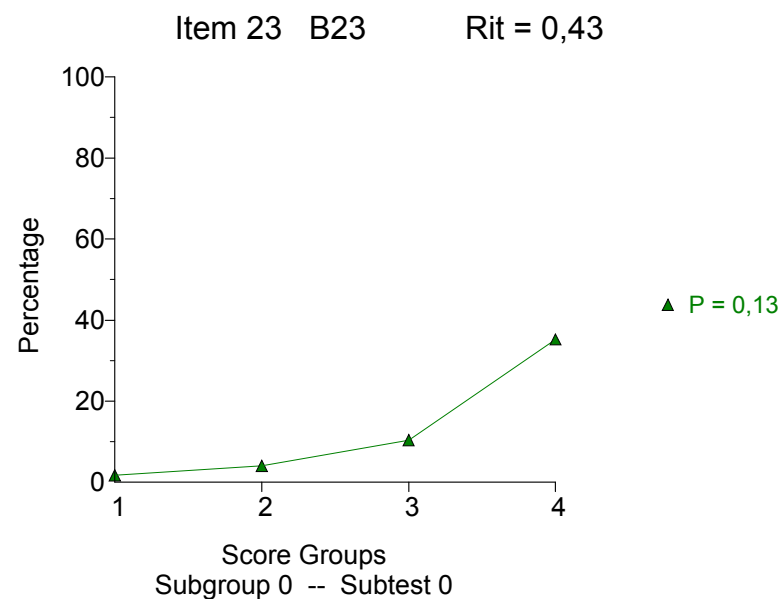
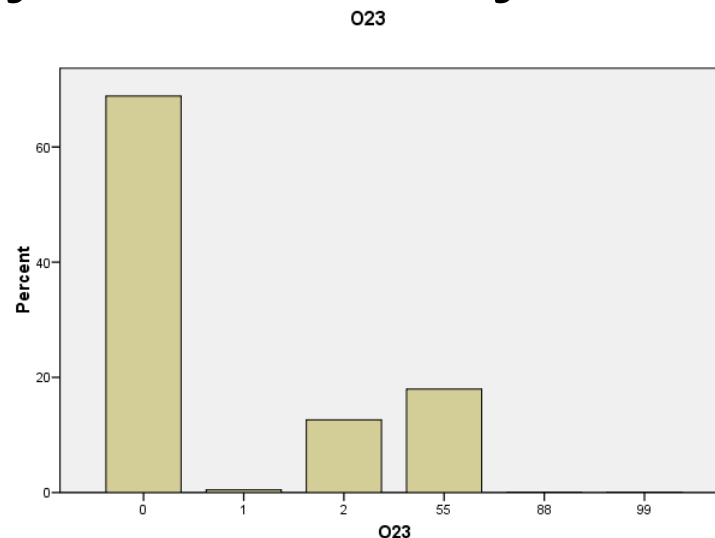
$$x^2 - 3x + 2 = 0.$$

M	1,23 (0,61)
M (O)	
ID	0,43



23. Nakon sniženja od 40%, cijena robe je 105 kn.

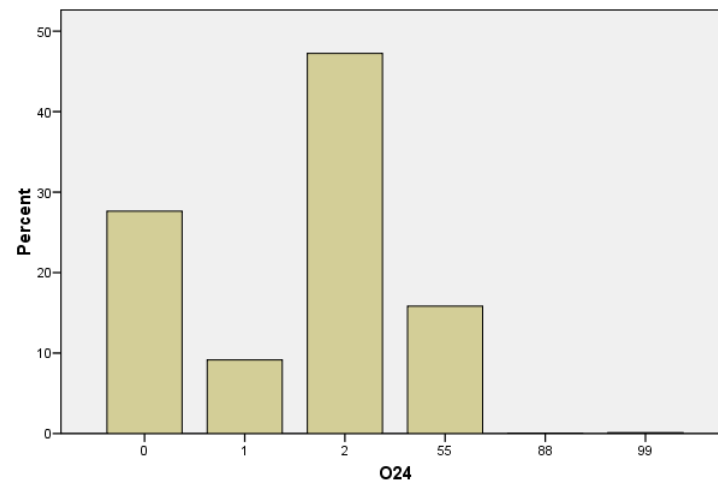
M	0,26 (0,13)
M (O)	
ID	0,35



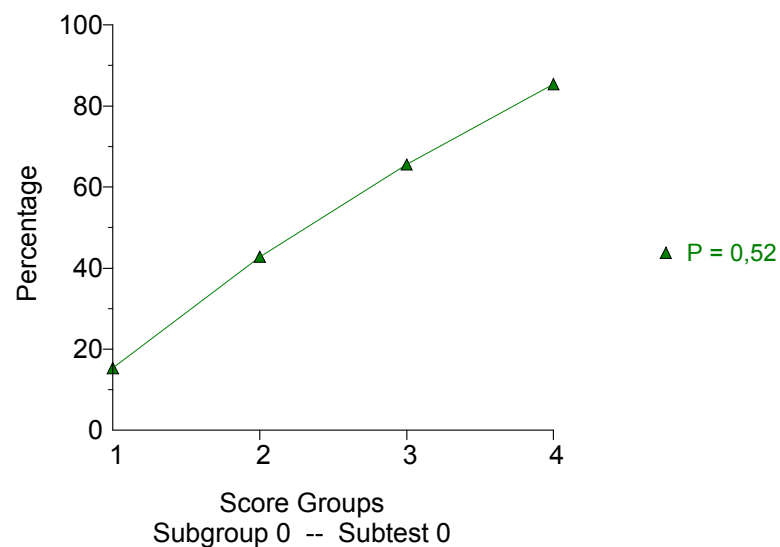
24. Riješite sustav

$$5 \begin{cases} 5x + 4y = 24 \\ -3x + 6y = 15. \end{cases}$$

M	1,04 (0,52)
M (O)	
ID	0,46



Item 24 B24 Rit = 0,56



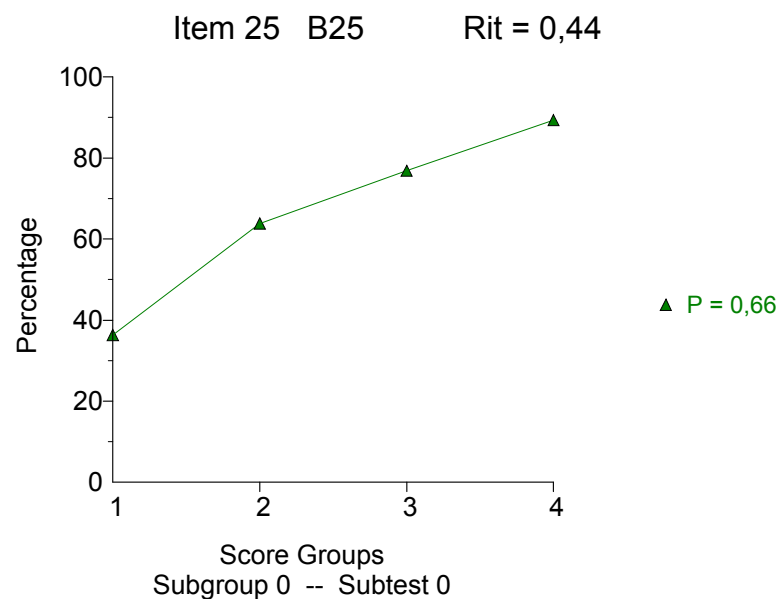
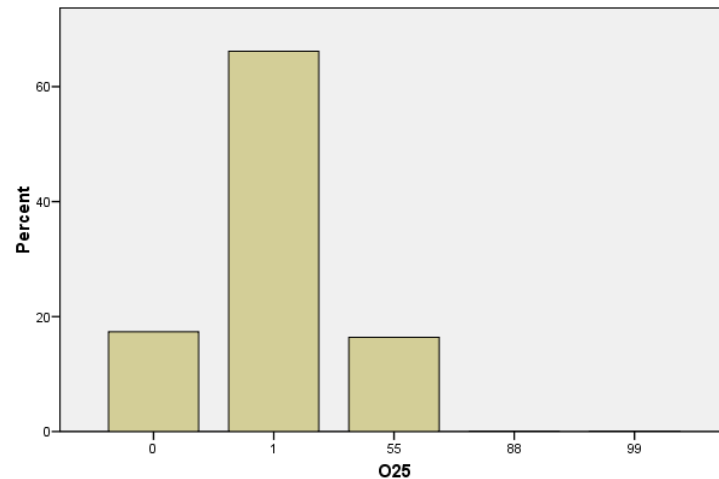
25. Formula koja povezuje stupnjeve Celzijeve ($^{\circ}\text{C}$) sa stupnjevima Fahrenheita ($^{\circ}\text{F}$) je

$$C = \frac{5(F - 32)}{9}.$$

25.1. odredite koliko je 451°F izraženo u Celzijevima.

O25

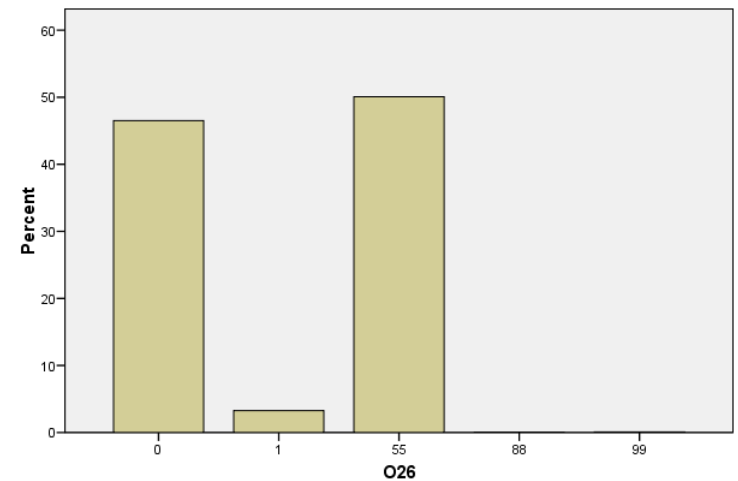
M	0,66
M (O)	
ID	0,38



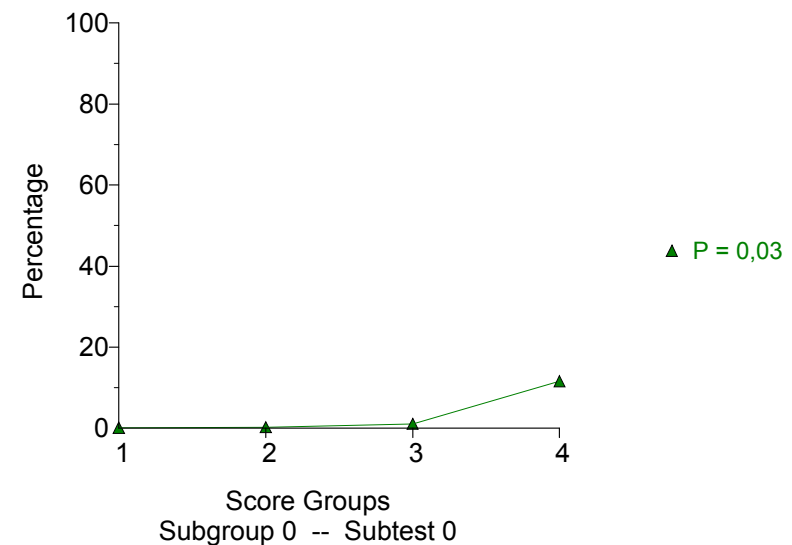
25.2. na kojoj se temperaturi Fahrenheitova i Celzijeva skala podudaraju?

026

M	0,03
M (O)	
ID	0,28

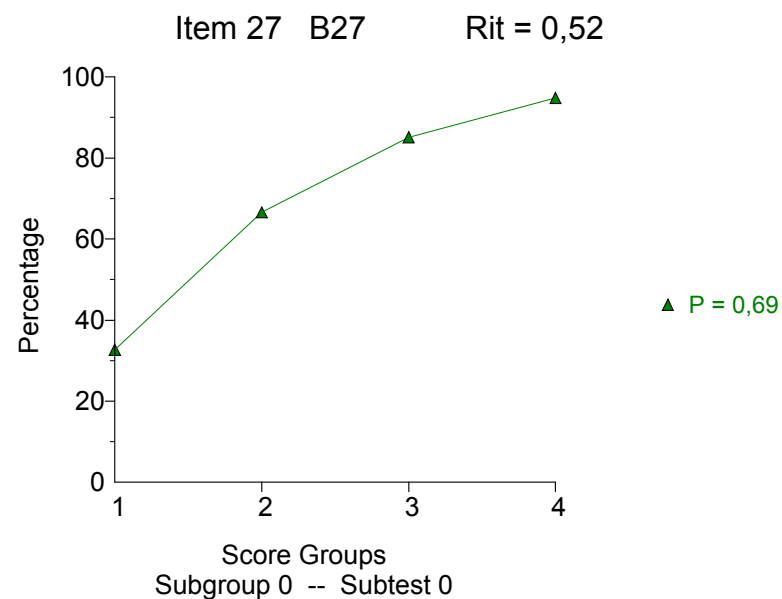
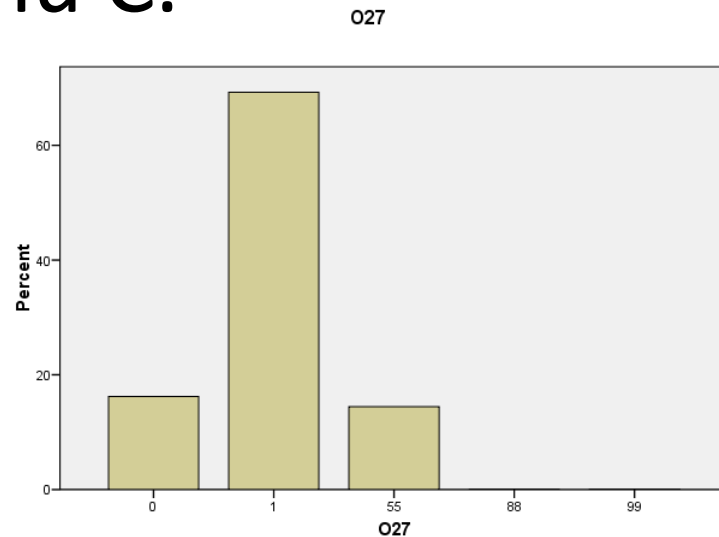


Item 26 B26 Rit = 0,3



26.1. U pravokutnome trokutu ABC pravi je kut u vrhu C.

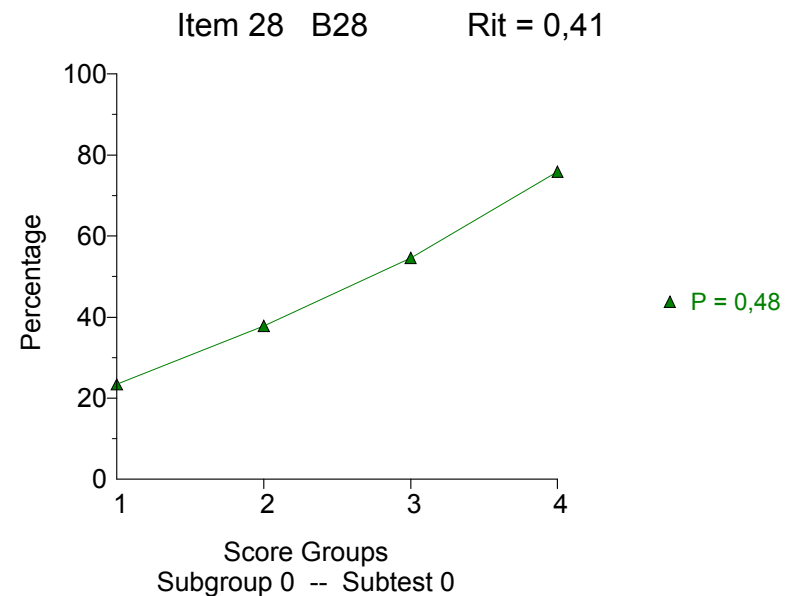
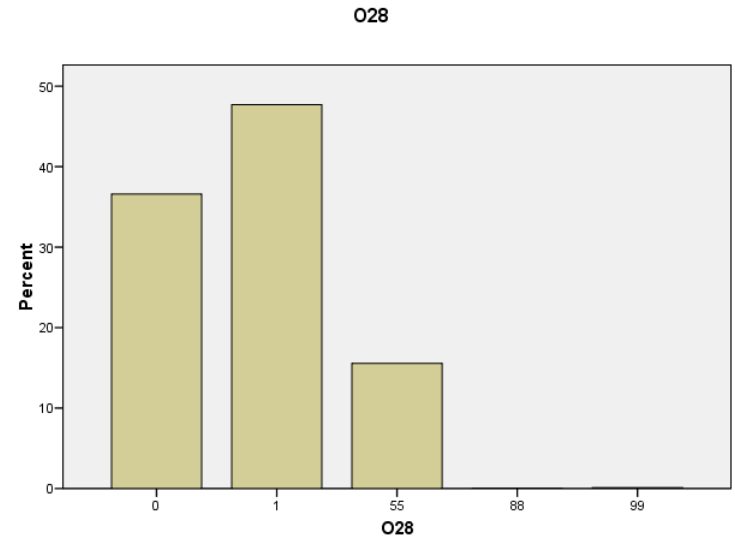
M	0,69
M (O)	
ID	0,47



26.2. koja je kateta trokuta dulja,

$$b = \overline{AC} \text{ ili } a = \overline{BC} ?$$

M	0,48
M (O)	
ID	0,35

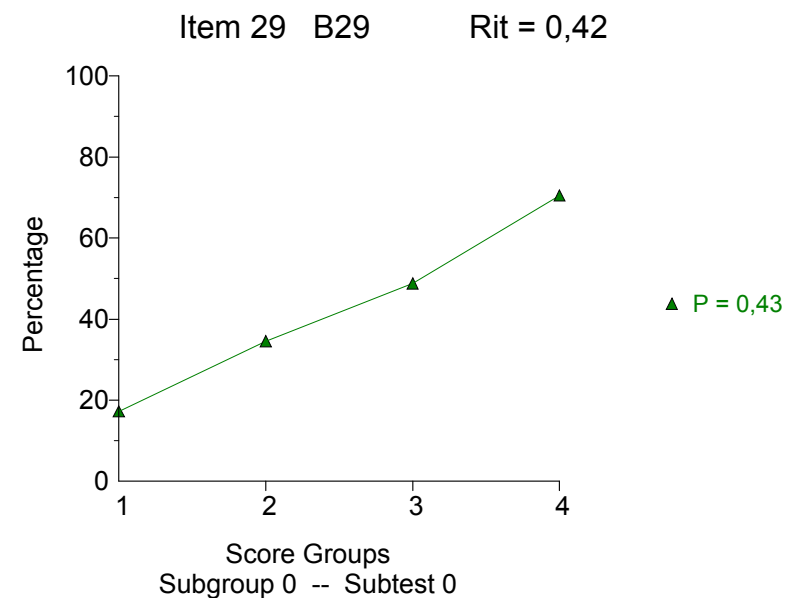
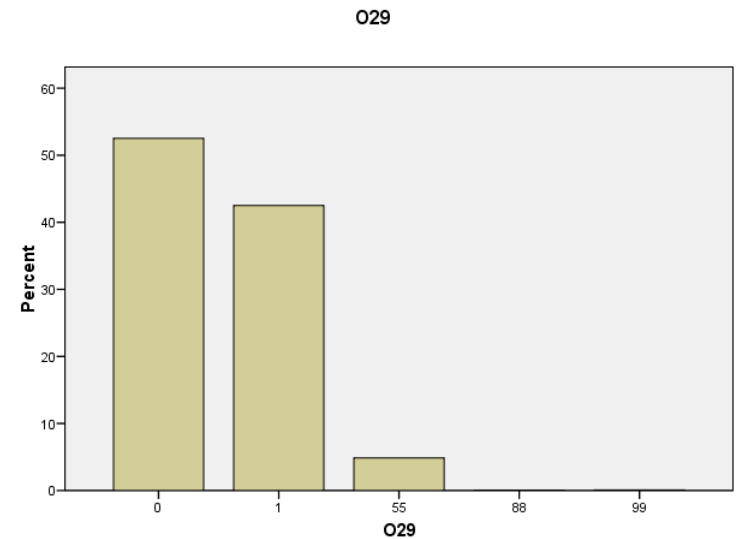


27. Bilježeno je vrijeme potrebno učenicima da odigraju računalnu igricu. Podatci su uneseni u koordinatni sustav na sljedeći način:
- točka A označuje da je 20 učenika odigralo igricu do kraja za više od 0, a manje od 5 minuta.
 - točka B označuje da je 25 učenika odigralo igricu do kraja za više od 5, a manje od 15 minuta.
 - točka C označuje da je 20 učenika odigralo igricu do kraja za više od 15 minuta, a manje od 20 minuta i tako dalje.



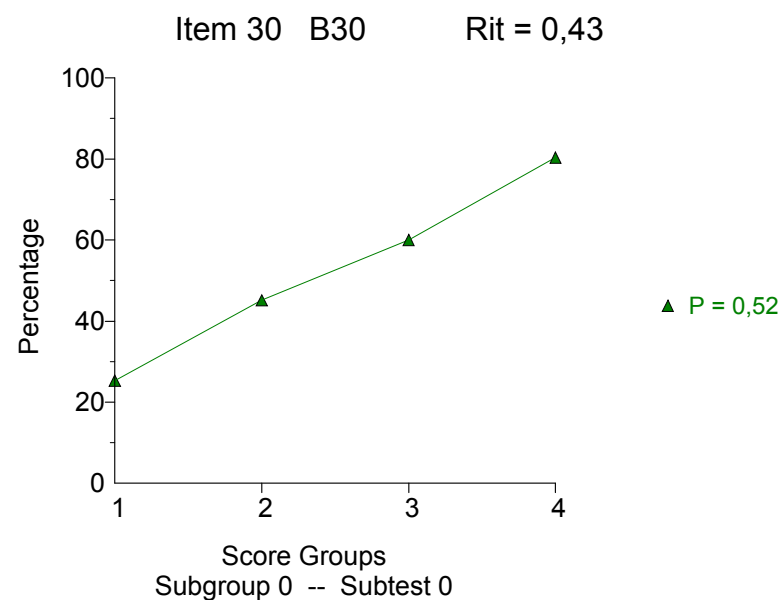
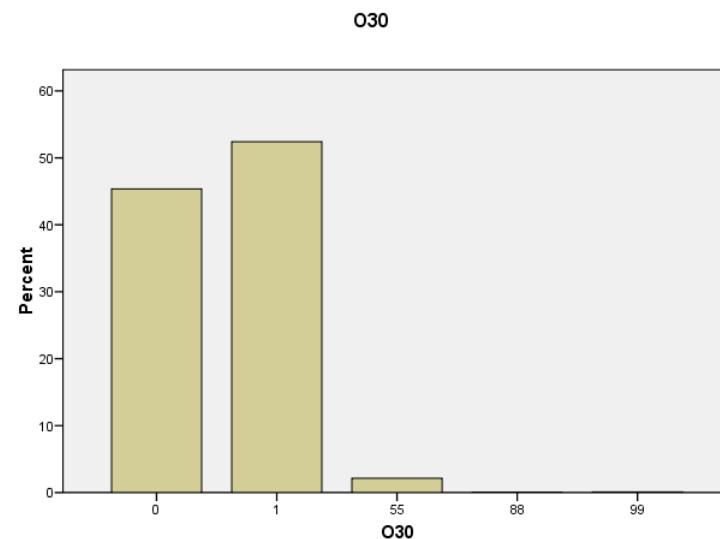
27.1. Što označuje točka G?

M	0,43
M (O)	
ID	0,36



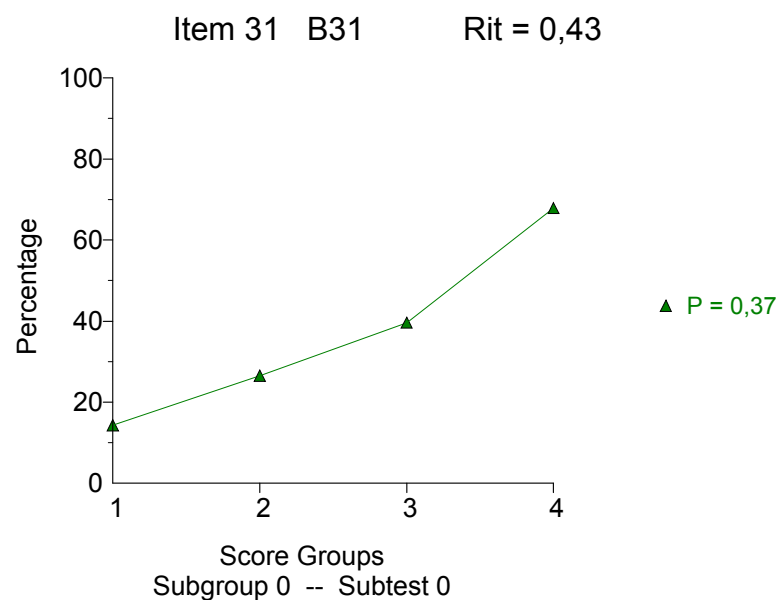
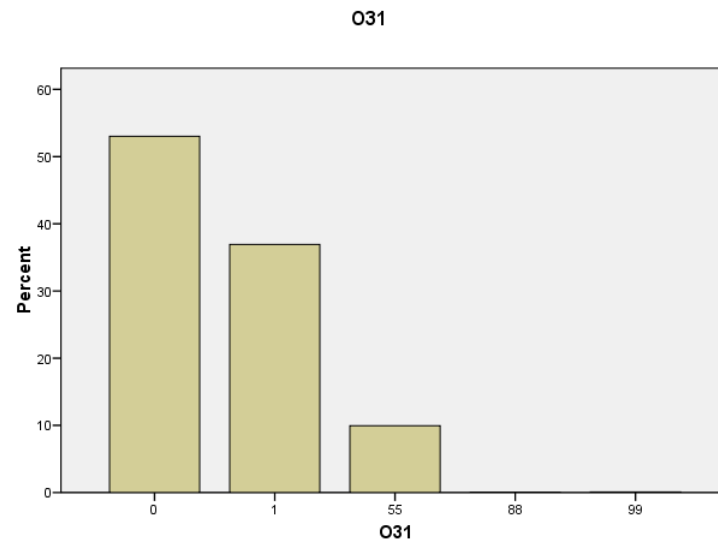
27.2. Koliko je učenika igralo računalnu igricu?

M	0,52
M (O)	
ID	0,37



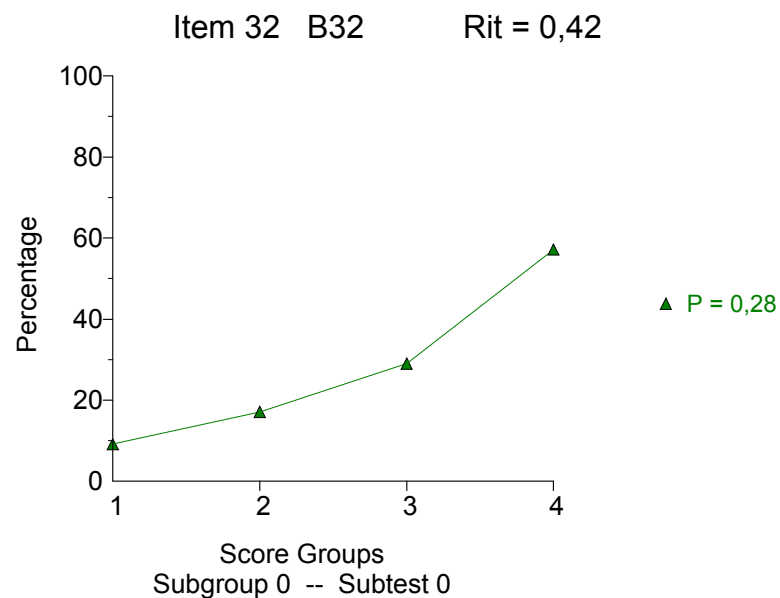
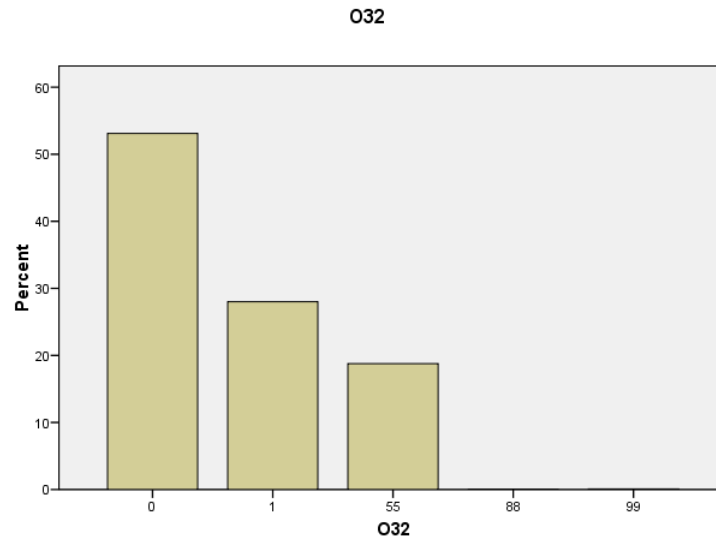
27.3. Koliki je postotak učenika trebao manje od 5 minuta da završi igricu?

M	0,37
M (O)	
ID	0,38



28. Ana, Cvita i Ivan zajedno su igrali novčanu nagradnu igru.

M	0,28
M (O)	
ID	0,37



28.2. Koliki postotak nagrade pripada Ivanu?

M	0,24
M (O)	
ID	0,39

