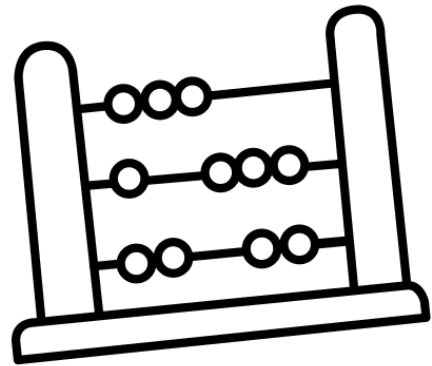


Isticmaalka fx-CG50 ee tirakoobka (statistics)

Maths

Unit Shaqeynta xisaabiyaha (calculator)



Natiijo

Waxaan awoodi karaa inaan isticmaalo fx-CG50 si aan u sameeyo xisaabinta xogta.

Erayada muhiimka ah

Soo noqnoqoshada (frequency) waa tirada jeer ee dhacdo dhacdo; ama tirada shakhsiyaadka (dadka, xayawaanka iwm.) ee leh sifo gaar ah.

Celceliska (arithmetic mean) ee xogta tirooyinka waa wadarta qiimaha (values) loo qaybiyo tirada qiimaha. Waa cabbirka u dhaxaysa (central tendency) oo matalaya celceliska qiimaha.

Dhexda (median) waa xogta dhexe (bartamaha) marka xogta loo habeeyo si tiro ahaan. Waa cabbirka u dhaxaysa (central tendency) oo matalaya celceliska qiimaha.

Erayada muhiimka ah

Moodka (mode) waa qiimaha (value) ugu soo noqnoqda. Waa cabbirka u dhaxaysa (central tendency) oo matalaya celceliska qiimaha.

Soo koobista tirakoobka (statistical summary) waxay soo koobtaa astaamaha xogta. Waxaa laga yaabaa inay ku jiraan celceliska (mean), dhexda (median) iyo/ama moodka (mode) kuwaas oo cabbira u dhaxaysa (central tendency). Sidoo kale waxaa laga yaabaa inay ku jirto kala duwanaanshaha (range) kaas oo cabbira faafitaanka.

Isticmaalka fx-CG50 ee tirakoobka (statistics)



Soo koobista tirooyinka xogta



Matalaadda garaafyada xogta

Celceliska (arithmetic mean) ee xogta tirooyinka waa wadarta qiimaha (values) loo qaybiyo tirada qiimaha.



Isra

Ma waxay la macno tahay inaan isticmaalo qaabka xisaabinta si aan ugu daro dhammaan tirooyinka ka hor intaan u qaybin?

Waxaa jira hab fudud oo lagu xisaabiyo celceliska (mean).



Nuur

Soo koobista tirooyinka xogta



Sharaxaad

fx-CG50 waxay kuu ogolaaneysaa inaad si dhakhso leh u soo saarto soo koobista tirakoobka (statistical summary).

Laga soo bilaabo menu-ga guud, u gudub ikhtiyaarka 'Statistics' oo riix 'EXE'.



Cabbirka kooxda (Group size)	Inta jeer ee dhacdo (Frequency)
0	1
1	1
2	2
3	2
4	3
5	2

Waa kan shax muujinaya tirada dadka cuntada ku cunaya miisas kala duwan oo makhaayad ah.

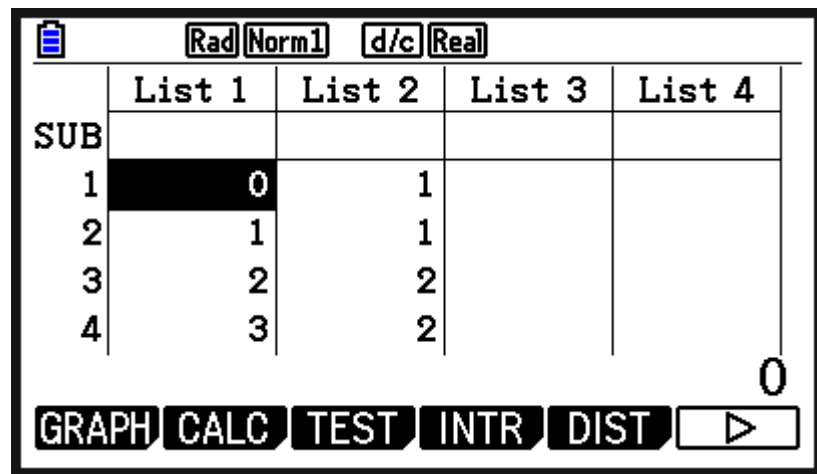
Tani waxay ka dhigan tahay 3 miis, mid kastaa wuxuu leeyahay 4 cunto qaata.

Tani waxay ka dhigan tahay 2 miis, mid kastaa wuxuu leeyahay 5 cunto qaata.

Soo koobid tirooyin oo xog ah (Numerical summaries of data)

Cabbirka kooxda (Group size)	Inta jeer ee dhacdo (Frequency)
0	1
1	1
2	2
3	2
4	3
5	2

Geli xogta isku hab isku mid ah miiska shaashadda.



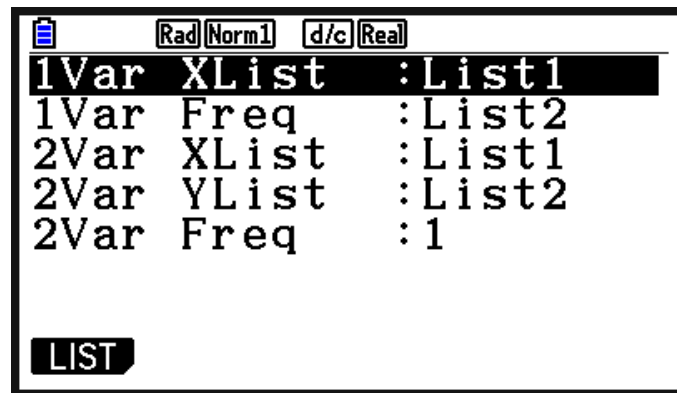
The image shows a TI-84 Plus calculator screen in the data editor mode. At the top, the mode is set to 'Rad', 'Norm1', 'd/c', and 'Real'. The screen displays a table with four columns: 'List 1', 'List 2', 'List 3', and 'List 4'. The rows are labeled 'SUB', '1', '2', '3', and '4'. The data entered is as follows:

	List 1	List 2	List 3	List 4
SUB				
1	0	1		
2	1	1		
3	2	2		
4	3	2		

At the bottom of the screen, there is a row of function keys: 'GRAPH', 'CALC', 'TEST', 'INTR', 'DIST', and a right arrow key. The number '0' is displayed in the bottom right corner of the screen.

Cabbirka kooxda (Group size)	Inta jeer ee dhacdo (Frequency)
0	1
1	1
2	2
3	2
4	3
5	2

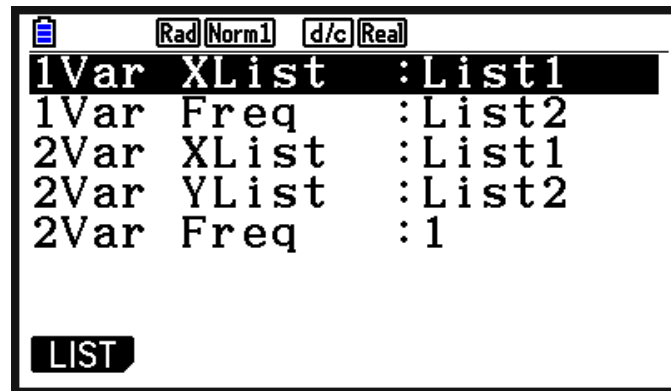
Riix 'CALC' (F2). Hadda waxaad u baahan tahay inaad qeexdo waxa liis kastaa ka dhigan yahay. Riix 'SET' (F6).



Cabbirka kooxda (Group size)	Inta jeer ee dhacdo (Frequency)
0	1
1	1
2	2
3	2
4	3
5	2

1Var XList: waa inay dhahdaa List 1.

1Var Freq: waa inay dhahdaa List 2. (Tani waa waxa liis kastaa ka dhigan yahay miiskeenna.)



Waxaad isticmaali kartaa 'LIST' (F1) si aad tan u beddesho haddii loo baahdo.

Cabbirka kooxda (Group size)	Joogteynta (Frequency)
0	1
1	1
2	2
3	2
4	3
5	2

Riix 'EXIT' ka dibna dooro '1-VAR' (F1), si aad u soo saarto soo koobida tirakoobka. Waxaad hoos u dhaadhacaysaa si aad wax badan u aragto.

```

1-Variable
x̄ = 3
Σx = 33
Σx² = 125
σx = 1.53741222
sx = 1.61245154
n = 11
    
```

Celceliska waxaa loo qoraa sida $\bar{x}$

Jaantuskan joogteynta (frequency) wuxuu muujinayaa tirada goolalka la dhaliyay ciyaar kasta oo ay sameeyeen kooxaha kulligood xilli ciyaareed kubbadda cagta.

Goolal la dhaliyay	Joogteynta (Frequency)
0	19
1	34
2	21
3	15
4	11

Waa imisa celceliska tirada goolalka la dhaliyay?

	Rad	Norm1	d/c	Real
1-Variable				
$\bar{x}$	=	1.65		
Σx	=	165		
Σx^2	=	429		
σx	=	1.2519984		
sx	=	1.25830573		
n	=	100		

1.65 gool (oo ku wareegaya 2)

Jaantuskan joogteynta (frequency) wuxuu muujinayaa tirada goolalka la dhaliyay ciyaar kasta oo ay sameeyeen kooxaha kulligood xilli ciyaareed kubbadda cagta.

Goolal la dhaliyay	Joogteynta (Frequency)
0	19
1	34
2	21
3	15
4	11

Waa imisa dhexdhexaadka (median) tirada goolalka la dhaliyay?

	Rad	Norm1	d/c	Real
1-Variable				
minX	=	0		↑
Q1	=	1		
Med	=	1		
Q3	=	3		
maxX	=	4		
Mod	=	1		↓

1 gool

Celceliska (arithmetic mean) ee xogta tirooyinka waa wadarta qiimaha (values) loo qaybiyay tirada qiimaha.



Isra

Laakiin maxaan sameeyaa haddii aan haysto jaantus joogteyn kooxaysan (grouped frequency table)?

Xisaabiyahaagu wuxuu weli heli karaa qiyaasta celceliska.



Nuur

57 qof ayaa la waraystay waxaana la weydiiyay inta lacag ah ee ay ku kharash gareeyeen cuntada intii ay ku sugnaayeen booqashadooda suuqa Oakfield.

qadarka la kharash gareeyay (amount spent) (in £)	soo noqnoqoshada (frequency) (f)
$£0 < £ \leq £20$	20
$£20 < £ \leq £50$	14
$£50 < £ \leq £100$	10
$£100 < £ \leq £200$	8
$£200 < £ \leq £300$	5

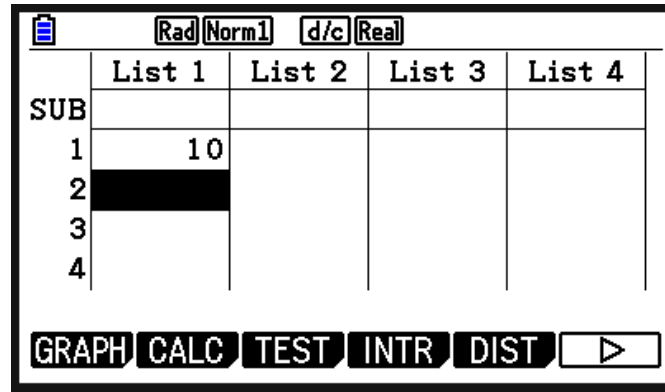
Si loo xisaabiyo qiyaasta celceliska, waxaan u baahanahay inaan isticmaalno barta dhexe ee fasalka kasta.

57 qof ayaa la waraystay waxaana la weydiiyay inta lacag ee ay ku kharash gareeyeen cuntada intii ay ku sugnaayeen suuqa Oakfield.

qadarka la kharash gareeyay (amount spent) (in £)	soo noqnoqoshada (frequency) (f)
$£0 < £ \leq £20$	20
$£20 < £ \leq £50$	14
$£50 < £ \leq £100$	10
$£100 < £ \leq £200$	8
$£200 < £ \leq £300$	5

Geli xisaabta oo riix 'EXE'.

Xisaabiyaha ayaa tan kuu samayn kara:

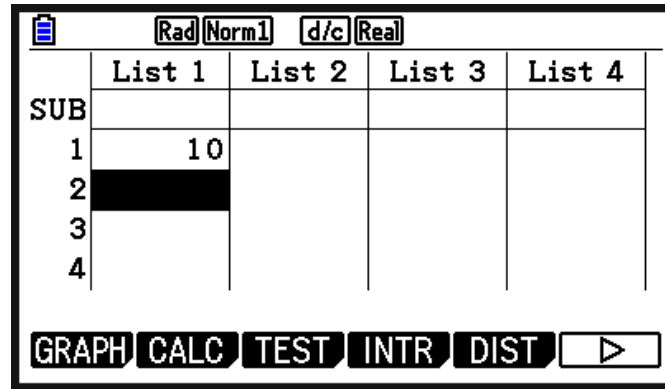


The image shows a TI-84 Plus calculator screen in the List Editor. At the top, the mode is set to 'Norm1' and 'Real'. The screen displays a table with four columns: 'List 1', 'List 2', 'List 3', and 'List 4'. The first column is labeled 'SUB' and has rows numbered 1 through 4. In row 1, the value '10' is entered in the 'List 1' column. The rest of the table is empty. At the bottom of the screen, there are buttons for 'GRAPH', 'CALC', 'TEST', 'INTR', 'DIST', and a right arrow button.

57 qof ayaa la waraystay waxaana la weydiiyay inta lacag ee ay ku kharash gareeyeen cuntada intii ay ku sugnaayeen suuqa Oakfield.

qadarka la kharash gareeyay (amount spent) (in £)	soo noqnoqoshada (frequency) (f)
$£0 < £ \leq £20$	20
$£20 < £ \leq £50$	14
$£50 < £ \leq £100$	10
$£100 < £ \leq £200$	8
$£200 < £ \leq £300$	5

Xisaabiyaha ayaa tan kuu samayn kara:



The image shows a TI-84 Plus calculator screen in the 'List Editor' mode. At the top, the mode is set to 'Norm1' and 'Real'. The screen displays a table with four columns: 'List 1', 'List 2', 'List 3', and 'List 4'. The first column is labeled 'SUB' and has rows numbered 1 through 4. In row 1, the value '10' is entered in the 'List 1' column. The rest of the table is empty. At the bottom of the screen, there are buttons for 'GRAPH', 'CALC', 'TEST', 'INTR', 'DIST', and a right arrow button.

Barta dhexe waxaa lagu muujiyay tiirka koowaad.

57 qof ayaa la waraystay waxaana la weydiiyay inta lacag ee ay ku kharash gareeyeen cuntada intii ay ku sugnaayeen suuqa Oakfield.

qadarka la kharash gareeyay (amount spent) (in £)	joogteynta (frequency) (f)
$£0 < £ \leq £20$	20
$£20 < £ \leq £50$	14
$£50 < £ \leq £100$	10
$£100 < £ \leq £200$	8
$£200 < £ \leq £300$	5

Xisaabi qiyaasta celceliska qadarka lacagta ee booqde kasta ku bixiyay.

	Rad Norm1 d/c Real
1-Variable	
$\bar{x}$	=68.245614
Σx	=3890
Σx^2	=567900
σx	=72.8401953
sx	=73.4876764
n	=57

£68.25 waa qiyaasta celceliska qadarka lacagta ee booqde kasta ku bixiyay.

57 qof ayaa la waraystay waxaana la weydiiyay inta lacag ee ay ku bixiyeen cuntada intii ay ku sugnaayeen suuqa Oakfield.

qadarka lacagta la bixiyay (amount spent) (in £)	joogteynta (frequency) (f)
£0 < £ ≤ £20	20
£20 < £ ≤ £50	14
£50 < £ ≤ £100	10
£100 < £ ≤ £200	8
£200 < £ ≤ £300	5

Xisaabi qiyaasta dhexda (median) qadarka lacagta ee booqde kasta ku bixiyay.

	Rad	Norm1	d/c	Real
1-Variable				
minX	=	10		↑
Q1	=	10		
Med	=	35		
Q3	=	75		
maxX	=	250		
Mod	=	10		↓

£35 waa qiyaasta dhexda (median) qadarka lacagta ee booqde kasta ku bixiyay.

1) Jadwalkan joogteynta (frequency) wuxuu muujinayaa qiimaynta xiddigaha ee maqaayad heshay usbuuca furitaankeeda.

Qiimaynta xiddigaha (Star rating)	Joogteynta (Frequency)
1	12
2	18
3	21
4	38
5	45

a) Waa maxay celceliska qiimaynta xiddigaha?

b) Waa maxay dhexda (median) qiimaynta xiddigaha?

2) Jadwalka joogteynta (frequency) wuxuu muujinayaa tirada qolalka jiifka ee guryaha kala duwan ee degmada magaalada.

Qolalka jiifka (Bedrooms)	Joogteynta (Frequency)
1	20
2	93
3	54
4	33

a) Waa maxay celceliska tirada qolalka jiifka?

b) Waa maxay dhexda (median) tirada qolalka jiifka?

3) Waqtiga ay qaadnayso muunad arday si ay u tagaan iskuulka ayaa lagu soo ururiyay jaantuska soo noqnoqda ee kooxaysan.

Waqtiga lagu qaatay safarka iskuulka (daqiiqado)	Soo noqnoqod (Frequency) (f)
$0 < t \leq 4$	28
$4 < t \leq 10$	23
$10 < t \leq 16$	70
$16 < t \leq 26$	52
$26 < t \leq 40$	30
$40 < t \leq 60$	13

a) Waa maxay celceliska waqtiga safarka (ilaa daqiiqada ugu dhow)?

b) Waa maxay dhexdhexaadka waqtiga safarka (ilaa daqiiqada ugu dhow)?

1) Jaantuskan soo noqnoqda wuxuu muujinayaa qiimaynta xiddigta ee maqaayad ka heshay usbuuca furitaankeeda.

Qiimaynta xiddigta (Star rating)	Soo noqnoqod (Frequency)
1	12
2	18
3	21
4	38
5	45

a) Waa maxay celceliska qiimaynta xiddigta?

3.64... xiddigood (oo ku wareegaya 4)

b) Waa maxay dhexdhexaadka qiimaynta xiddigta?

4 xiddigood

2) Jaantuska soo noqnoqda wuxuu muujinayaa tirada qolalka jiifka ee guryaha kala duwan ee aagga magaalada.

Qolalka jiifka (Bedrooms)	Soo noqnoqod (Frequency)
1	20
2	93
3	54
4	33

a) Waa maxay celceliska tirada qolalka jiifka?

2.5 qolal jiif (oo ku wareegaya 3)

b) Waa maxay dhexdhexaadka tirada qolalka jiifka?

2 qolal jiif

3) Waqtiga ay qaadnayso muunad arday si ay u tagaan iskuulka ayaa lagu soo ururiyay jaantuska soo noqnoqda (grouped frequency table).

Waqtiga lagu qaatay safarka iskuulka (daqiiqado)	Soo noqnoqosho (Frequency) (f)
$0 < t \leq 4$	28
$4 < t \leq 10$	23
$10 < t \leq 16$	70
$16 < t \leq 26$	52
$26 < t \leq 40$	30
$40 < t \leq 60$	13

a) Waa maxay qiyaasta celceliska waqtiga safarka (ilaa daqiiqada ugu dhow)?

18 daqiiqo

b) Waa maxay qiyaasta dhexdhexaadka waqtiga safarka (ilaa daqiiqada ugu dhow)?

13 daqiiqo

Isticmaalka fx-CG50 ee tirakoobka (statistics)



Soo koobid tirooyin (Numerical summaries) oo xog ah



Muuqaallo garaafeed oo xog ah (Graphical representations)

fx-CG50 waxay sawiri kartaa garaafyo firdhiyeen (scatter graphs) oo ay soo saari kartaa khadka ugu habboon (line of best fit).



Isra

Wow! Taasi waa cajiib!

Waxay samayn kartaa xisaabinta loo baahan yahay xisaabta heerka A (A Level maths).



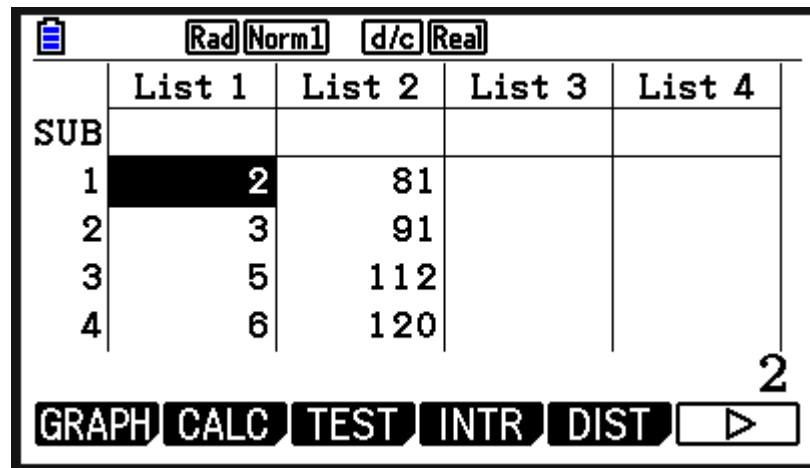
Nuur

Muuqaallo garaafeed oo xog ah (Graphical representations)

Xogta hoose waxay muujinaysaa da'da iyo dhererka muunad lix carruur ah. Maxaad ka dareensan tahay xogtan?

da'da (sano)	dhererka (cm)
2	81
3	91
5	112
6	120
7	124
11	138

Waxaad ku sawiri kartaa garaafkan firdhiyeen (scatter graph) xisaabiyahaaga adoo isticmaalaya qaabka 'Statistics'.
Geli xogta (data) miiska.



The image shows a TI-84 Plus calculator screen in the 'STAT' menu. The 'Edit' option is selected, and the data is being entered into List 1 and List 2. The screen shows the following data:

	List 1	List 2	List 3	List 4
SUB				
1	2	81		
2	3	91		
3	5	112		
4	6	120		

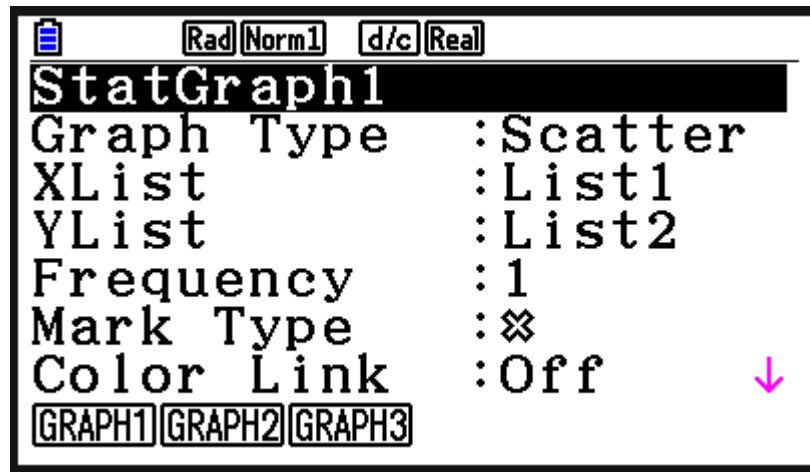
The calculator is set to 'Rad', 'Norm1', 'd/c', and 'Real'. The 'GRAPH' button is highlighted, and the number '2' is displayed in the bottom right corner.

Muuqaallo garaafeed (Graphical representations) oo xogta (data)

Xogta (data) hoose waxay tusinaysaa da'da iyo dhererka shan carruur ah. Maxaad ka dareensan tahay xogtan?

da'da (sano)	dhererka (cm)
2	81
3	91
5	112
6	120
7	124
11	138

Riix 'GRAPH' (F1). Riixida 'SET' (F6) waxay kuu ogolaaneysaa inaad go'aamiso doorsoome (variable) ku yaal dhidibada (axis) iyo sida dhibcuhu u ekaan doonaan. (Nooca calaamadda (Mark type).)

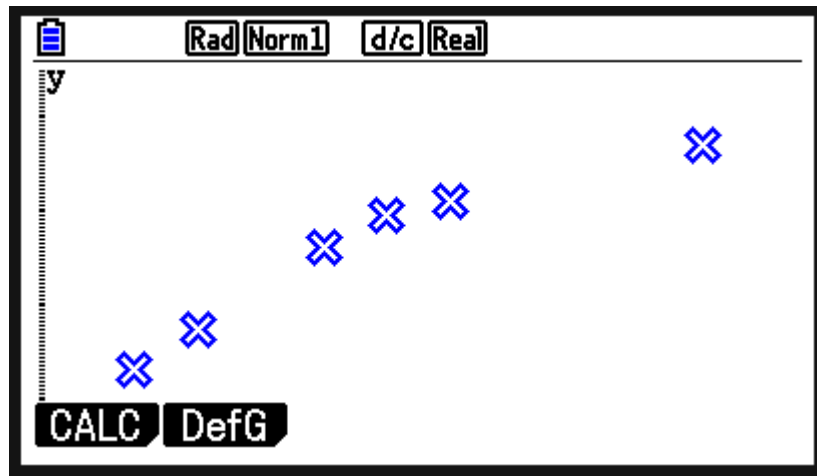


Muuqaallo garaafeed (Graphical representations) oo xogta (data)

Xogta (data) hoose waxay tusinaysaa da'da iyo dhererka shan carruur ah. Maxaad ka dareensan tahay xogtan?

da'da (sano)	dhererka (cm)
2	81
3	91
5	112
6	120
7	124
11	138

Riix 'EXIT' ka dibna dooro 'GRAPH1' (F1).



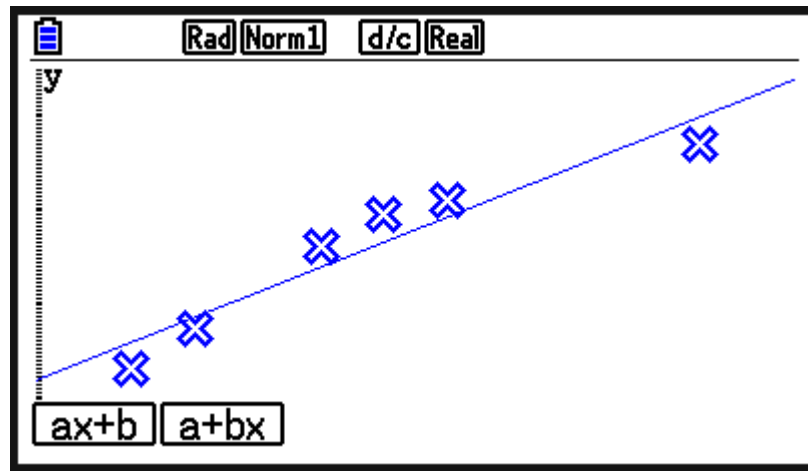
Muuqaallo garaafeed (Graphical representations) oo xogta (data)

Xogta (data) hoose waxay tusinaysaa da'da iyo dhererka shan carruur ah.

Maxaad ka dareensan tahay xogtan?

da'da (sano)	dhererka (cm)
2	81
3	91
5	112
6	120
7	124
11	138

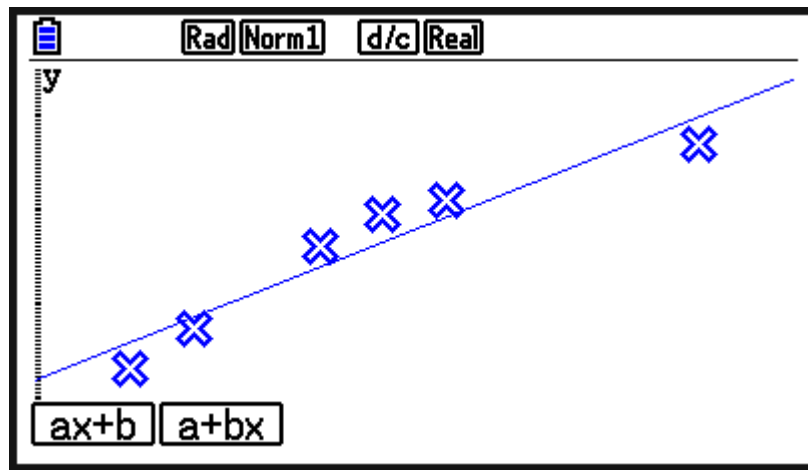
Riix 'CALC' (F1), ka dibna X (F2) iyo ka dibna 'ax+b' (F1). Shaashadda xigta, riix 'DRAW' (F6) si aad u aragto khadka ugu habboon (line of best fit).



Muuqaallo garaafeed (Graphical representations) oo xogta (data)

Xogta (data) hoose waxay tusinaysaa da'da iyo dhererka shan carruur ah. Maxaad ka dareensan tahay xogtan?

da'da (sano)	dhererka (cm)
2	81
3	91
5	112
6	120
7	124
11	138



Waxay u muuqataa inay jirto xiriir togan (positive correlation). Marka uu ilmuhu weynaado, wuu dheer yahay.

Muuqaallo garaafeed oo xog ah (Graphical representations of data)

Xogta hoose waxay muujinaysaa mugga biyaha (water) ee weel ku jira muddo ka dib.

Biyo (Water) (l)	0.25	0.63	0.78	1.11	1.29	1.57
Waqti (Time) (s)	30	60	90	120	150	180

Kii doorsoome (variable) ayaa loo qorsheeyay inuu ku yaallo dhidibka x?

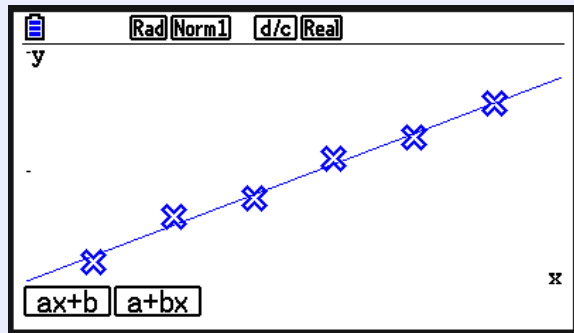
Doorsoome madax-bannaan (independent variable) - waqtiga.

Muuqaallo garaafeed oo xog ah (Graphical representations of data)

Xogta hoose waxay muujinaysaa mugga biyaha (water) ee weel ku jira muddo ka dib.

Biyo (Water) (l)	0.25	0.63	0.78	1.11	1.29	1.57
Waqti (Time) (s)	30	60	90	120	150	180

b) Sawir garaafka firdhisani (scatter graph) iyo xariiqda ugu habboon (line of best fit). Maxaad ka ogaataa xogta?



Waxaa jira xiriir togan (positive correlation). Marka waqtigu kordho, mugga biyuhu (water) sidoo kale wuu kordhaa.

1) Jadwalku wuxuu muujinayaa xogta cimilada ee Bradford, shan bilood ee 2021.

Maxay xogtan ka soo jeedinaysaa cimilada? Ku caddey jawaabtaada.

Bil	Wadarta roobka (mm)	Wadarta qorraxda (saacadood)
Feb	100	66
Apr	16	216
Jun	22	173
Aug	61	126
Oktoobar (Oct)	93	86

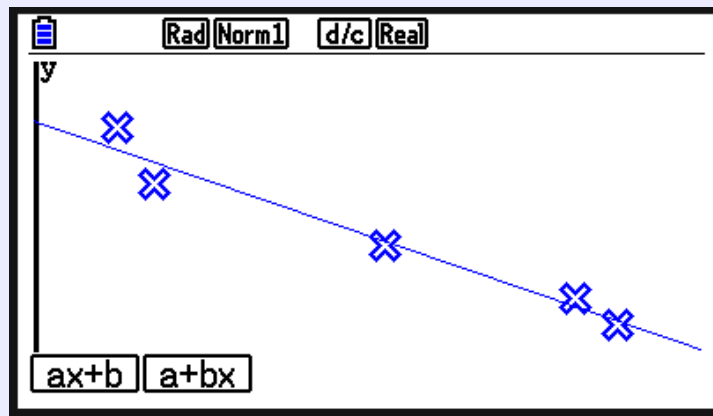
2) Yacquub wuxuu ordaa taxane tartamo masaafo dheer. Tartan kasta, wuxuu diiwaan geliyaa waqtigiisa iyo sareynta koorsada. Maxay xogtan ka soo jeedinaysaa sareynta iyo waqtiga la qaatay? Caddee jawaabtaada.

sareyn (m) (elevation (m))	waqti (s) (time (s))
51	1756
4	1644
35	1735
115	1911
96	1870

1) Jadwalku wuxuu muujinayaa xog cimilo oo ka timid Bradford, shan bilood oo 2021 ah.

Maxay xogtan ka soo jeedinaysaa cimilada? Caddee jawaabtaada.

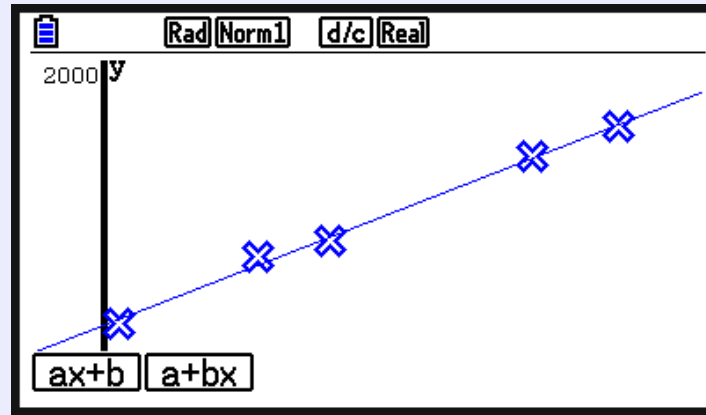
Bisha (Month)	Wadarta roobka (mm) (Total rainfall (mm))	Wadarta qorraxda (saacadood) (Total sunshine (hours))
Feb	100	66
Apr	16	216
Jun	22	173
Aug	61	126
Oct	93	86



Waxaa jira xiriir taban (negative correlation). Roob badan waxay ka dhigan tahay qorrax yar.

2) Yacquub wuxuu ordaa taxane tartamo masaafo dheer. Tartan kasta, wuxuu diiwaan geliyaa waqtigiisa iyo sareynta koorsada. Maxay xogtan ka soo jeedinaysaa sareynta iyo waqtiga la qaatay? Caddee jawaabtaada.

sareyn (m) (elevation (m))	waqti (s) (time (s))
51	1756
4	1644
35	1735
115	1911
96	1870



Waxaa jira xiriir togan (positive correlation). Sareynta weyn, waqtiga uu ku qaato inuu ordo ayaa badan.

Qaar ka mid ah xisaabiyeyaasha (calculators) waxay qaban karaan wax ka badan xisaabinta aasaasiga ah.

fx-CG50 waxay soo saari kartaa soo koobid tirakoob (statistical summary) oo ku saabsan xog (data) go'an.

Soo koobidu waxay ku daraysaa celceliska (mean), dhexdhexaadka (median), rubucda sare iyo tan hoose (upper and lower quartiles).

fx-CG50 waxay soo saari kartaa matalaadyo garaaf (graphical representations) oo xog (data) ah.