

Statistics Worksheet

Class Level: 11

MoNE Objective

TD.11.5.1. Gerçek hayat durumlarıyla ilgili bir istatistik problemini çözmek için verileri toplar, düzenler, temsil eder ve yorumlar.

Time: 10 minutes

Reflection

In this worksheet, I put emphasis on finding the line of best fit function with an experiment via TI-84 calculator. Since I was inspired by a YouTube video while I was creating this worksheet, I was impressed that the student could find the approximate line of best fit function and did his calculations according to this function. In this worksheet, I also want students to make estimations to find the line of best fit functions by trying with their TI-84 calculator, but differently I want them to find the line of best fit via TI-84 and compare it with their estimations. Then I want students to do their calculations using the exact line of best fit function. Although this activity may seem to be too easy for 11th grades, I chose this activity to be done in a limited time which is 10 minutes. It would be a good activity for students to make estimations via experiments and understand how to make a prediction through finding the line of best fit.

Process

Suppose that you went on a long trip from Mersin to Istanbul with your family. During the journey, you never stopped. Looking at the distance you had travelled every hour, you collected the data below.

Hour	1	2	3	4	5	6	7	8	9	10
Distance	100	203	299	393	496	585	689	786	888	991
	km									

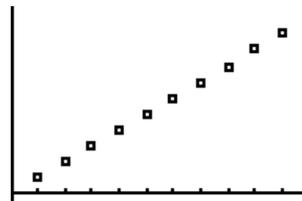
1. Which function do you think gives the approximate distance related to the hours you had travelled?

- Enter the data into your TI 84 calculator: Press [STAT], highlight (EDIT) and press [1]. Enter the hour numbers into (L1) list by pressing enter after entering each number.
- Move the cursor right and enter the distances into (L2) list.
- Press [GRAPH] and then press [ZOOM][9].
- The steps you should follow are shown below.

```
30001 CALC TESTS
1:Edit
2:SortA(
3:SortD(
4:ClrList
5:SetUpEditor
```

L1	L2	L3	1
1	100	-----	
2	203		
3	299		
4	393		
5	496		
6	585		
7	689		

L1(1)=1



2. Does the function you estimated first, go through the points?

- Press [Y=] and enter the function that you think approximately fits with the data.

- Press [GRAPH] and see if the graph of the function goes through the points.

3. Try to make a better estimate of the function by entering the function into [Y2], [Y3], and so on.

4. Find the line of best fit and see if your estimation is close to the line of best fit.

- Press [STAT], move the cursor right and highlight (CALC), press [4](LinReg).
- Enter (L1) for XList and (L2) for YList
- FreqList should be empty
- For (Store RegEQ), press [VAR], move the cursor right and highlight (Y-VARS) and press [1](Function), and press [1] (Y1). If there is already a function for (Y1), choose another function, so that you could compare the line of best fit and four other functions.
- Highlight (Calculate) and press [ENTER]
- Press [GRAPH]
- The steps you should follow are shown below.

```

EDIT  [STAT] TESTS
1:1-Var Stats
2:2-Var Stats
3:Med-Med
4:LinReg(ax+b)
5:QuadReg
6:CubicReg
7:QuartReg

```

```

LinReg(ax+b)
Xlist:L1
Ylist:L2
FreqList:
Store RegEQ:
Calculate

```

```

VARS  [Y-VARS]
1:Function...
2:Parametric...
3:Polar...
4:On/Off...

```

```

FUNCTION
1:Y1
2:Y2
3:Y3
4:Y4
5:Y5
6:Y6
7:Y7

```

```

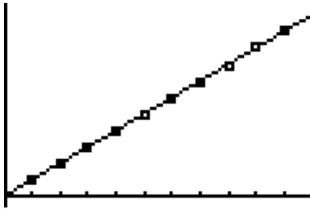
LinReg(ax+b)
Xlist:L1
Ylist:L2
FreqList:
Store RegEQ:Y1
Calculate

```

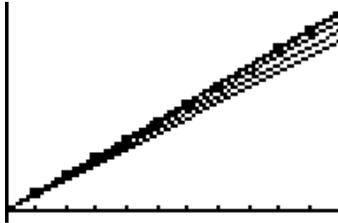
```

LinReg
y=ax+b
a=98.33939394
b=2.133333333
r^2=.9998439794
r=.9999219866

```



- If you tried other functions, you may see the graph as;



5. If your destination is 1000 km from your starting point, calculate the exact time that you reach your destination?