



Unit 4 Day 25 - Fit a Line to Data – With a Calculator

Create scatter plots and write equations to model data.

Example 1 (With a calculator): The table shows the number of hours students spent playing video games and the score they received on their tests.

<i>y</i>	Scores on Tests	85	77	75	75	80	65
<i>x</i>	Hours Spent Playing Video Games	6	7	9	5	8	10



a) Identify the independent and dependent variables.

Independent: # of hours playing

Dependent: Scores on tests

b) Label your axes and then make a scatter plot.

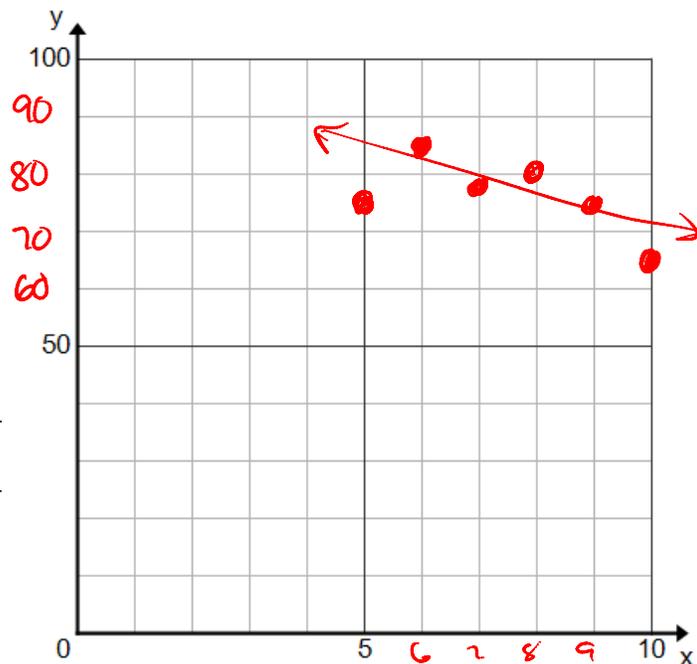
c) Describe the correlation of the data:

As the number of hours of playing video games... _____

increased the scores on tests decreases.

d) Write the equation of the line of best fit.

$$y = -2.2x + 92.67$$



Steps on using the calculator to find the line of best fit:

Step 1: Go to $\boxed{2^{nd}}$ $\boxed{Y=}$ (Stat Plot).

Enter #1: **Plot 1**

Turn **On**. Type: **Scatterplot**. Xlist: **L1** Ylist: **L2**

Step 2: Go to \boxed{Stat} and then #1: \boxed{Edit} Enter the data points into **L1** and **L2**

Step 3: Go to \boxed{Stat} and then \boxed{Calc} and then #4 \boxed{LinReg} (Include parameters)

Step 4: Write your equation for your line of best fit.

a = slope

b = y-intercept

e) Explain the meaning of the y-intercept.

If a student spends 0 hours playing video games, they will score a 92.67% \cup

f) Explain the meaning of the slope.

A student's score will decrease 2.2% for every hour they play video games.

g) Predict a reasonable test score for playing video games for 12 hours.

$$y = -2.2(12) + 92.67$$
$$y = 60.27\%$$

h) If Brian received a 50 on his test, what is a reasonable number of hours he played video games for?

$$50 = -2.2x + 92.67$$
$$-42.67 = -2.2x$$
$$19.40 \text{ hours} = x$$

Example 3: The table below shows the fat content and calories for various burgers.



Fat (g)	19	31	34	35	39	39	43
Calories	410	580	590	570	640	680	660

a) Identify the independent and dependent variables.

Independent: Fat

Dependent: Calories

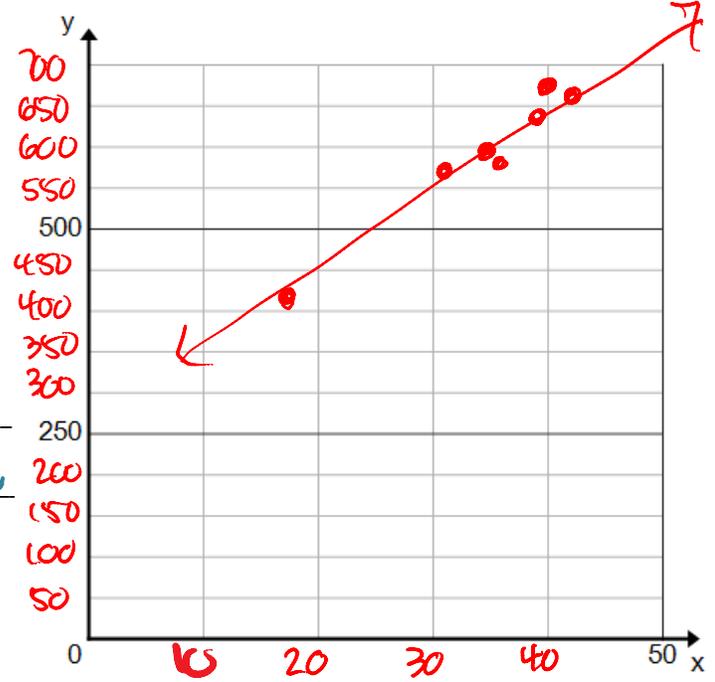
b) Label your axes and then make a scatter plot.

c) Describe the correlation of the data:

As the number of grams of fat... increases,
the number of calories increases.

d) Write the equation of the line of best fit.

By hand: $m = \frac{660 - 410}{43 - 19} = \frac{250}{24}$
 Slope: $\frac{25}{24}$
 pt: $(19, 410)$
 $y - 410 = \frac{25}{24}(x - 19)$
 $y - 410 = 10.41x - 197.92$
 $y = 10.41x + 607.92$



or by calc $y = 11.06x + 20.95$

e) Explain the meaning of the y-intercept.

For 0 fat grams, there are 20.95 cal.

f) Explain the meaning of the slope.

For every 1 gram of fat added, there are 11.06 calories added.

g) A new burger containing 28 grams of fat is being introduced. What would you expect the number of calories to be?

$y = 11.06(28) + 20.95$
 $y = 520.63$ calories