

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Period: \_\_\_\_\_

Lesson 1.04  
**Linear Regression Homework**

Use the following steps to find equation of a line using linear regression.  
STAT, EDIT, L1 (put in x values), L2 (put in y values), then STAT →CALC 4: LinReg ENTER  
(to clear a list highlight L1 or L2 and press CLEAR , ENTER)

**Round all decimals to 3 places.**

1. **DIET** Bill began his diet when he weighed 268 pounds. After 4 weeks he weighed 250 pounds.

- a) What are the ordered pairs and what would they represent in this situation?
- b) Fill in the blanks \_\_\_\_\_ depends on \_\_\_\_\_.
- c) What is the equation of the line if  $w$  represents weeks and  $p$  represents pounds?
- d) What is the slope of your line and what does it mean in this situation?
- e) What is the y-intercept and what does it mean in this situation?
- f) How many weeks will Bill need to diet to bring his weight down to 180 pounds?

2. **Phone** If a five-minute overseas call costs \$5.91 and a ten-minute call costs \$10.86.

- a) What are the ordered pairs and what would they represent in this situation?
- b) Fill in the blanks \_\_\_\_\_ depends on \_\_\_\_\_.
- c) What is the equation of the line if  $m$  represents minutes and  $c$  represents cost?
- d) What is the slope of your line and what does it mean in this situation?
- e) What is the y-intercept and what does it mean in this situation?
- f) If the charge for a call was \$16.80, how many minutes long was it?
- g) What is the cost for the 1<sup>st</sup> minute?

3. **HEALTH** Christie has a treadmill that uses the time on the treadmill and the speed walking or running to estimate the number of calories she burns during a workout. The table gives the workout times and the calories burned for several workouts.

<b>Time (minutes)</b>	18	24	30	40	42	48	52	60
<b>Calories burned</b>	260	280	320	380	400	440	475	?

- a) Use linear regression to find the equation that best represents this data.
- b) Use the equation to find the missing piece of data in the table then write a sentence that interprets this data point. (round calories burned to the nearest whole number)

4. **ALTITUDE** In most cases, temperature decreases with increasing altitude. As Diana drives into the mountains, her car thermometer registers the temperatures ( $^{\circ}\text{F}$ ) shown in the table at the given altitudes (feet).

<b>Altitude (ft)</b>	7500	8200	8600	9200	9700	10400	12000
<b>temperatures (<math>^{\circ}\text{F}</math>)</b>	61	58	56	53	50	46	?

- a) Use linear regression to find the equation that best represents this data.
- b) Use the equation to find the missing piece of data in the table then write a sentence that interprets this data point.

5. **Fuel Economy** The table below gives the approximate weights in tons and estimates for overall fuel economy in miles per gallon for several cars.

<b>Weight (tons)</b>	1.3	1.4	1.5	1.8	2	2.1	2.4
<b>Miles per Gallon</b>	29	24	23	21	?	17	15

- a) Use linear regression to find the equation that best represents this data.
- b) Use the equation to find the missing piece of data in the table then write a sentence that interprets this data point.