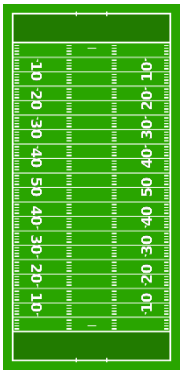
Name:_____ Date:_____

Predicting using a linear regression



We are going on a field trip! Literally. We are going to the field to collect some data. You will be doing two experiments.

EXPERIMENT ONE: You will be looking at how far you can run (or walk) in three second increments. Someone needs to be the timer/recorder and someone will be the run/walker.

Time	0	3	6	9	12	15	18
# of yards	0						

EXPERIMENT TWO: Now you will be looking at how many steps you can climb in two second increments. Have someone be the stepper and one person be the timer/recorder.

Time	0	2	4	6	8	10	12
# of steps	0						

1) For the experiments are they causation or just correlation?
   EXPERIMENT ONE:
   EXPERIMENT TWO:

2) For the experiments are they a positive or negative correlation?
   EXPERIMENT ONE:
   EXPERIMENT TWO:

3) Predict if you think the data is a strong or a weak correlation
   EXPERIMENT ONE:
   EXPERIMENT TWO:

4) Based on your data, how many yards do you think you could go in 20 seconds? Explain how you came to that prediction

5) Based on your data how many steps do you think you could climb in 9 seconds? Explain how you came to that prediction.

6) Using your calculator determine the correlation coefficient and the linear regression formula

EXPERIMENT ONE (yards)	EXPERIMENT TWO (stairs)
r = y =	r = y =

7) Using your formula you found in question 6, determine the number of yards you expected to go in 20 seconds.

8) How does this compare to your prediction from question four?

9) Do you think that this is accurate estimate? Why or why not?

10) Use your formula you found in question 6 to determine the number of steps you could climb in 9 seconds.

11) How does this compare to your prediction from question five?

12) Do you think that this is an accurate estimate? Why or why not?

13) Based on your formula, how many yards would you be expected to go in 12 seconds? How close is that to your actual data?

14) Based on your formula, how many steps would you expect to climb in 12 seconds? How close is that to your actual data?

15) Was your correlation coefficient for experiment one strong or weak? Do you agree? Why or why not? Use your answers on this page to justify your answer.

16) Was your correlation coefficient for experiment two strong or weak? Do you agree? Why or why not? Use your answers on this page to justify your answer.