

Extension Problem—Ch.3

Name_____

Pre-Calculus

Date_____ Due_____

Choose one problem and complete it showing all steps and work.

<Extra credit will be available for anyone choosing to complete both tasks>

Linear:

•Select two (2) topics that you think will have a linear relationship. (State your Hypotheses.)

•Conduct a survey of 20 people and record the data. (Be sure to keep track of names with each response, as Data is no good if it can't be verified.)

ex: The distance students have to travel to get to school compared to how much money they have with them. (You may not use this example.)

•Plot your data using appropriate headings and scales.

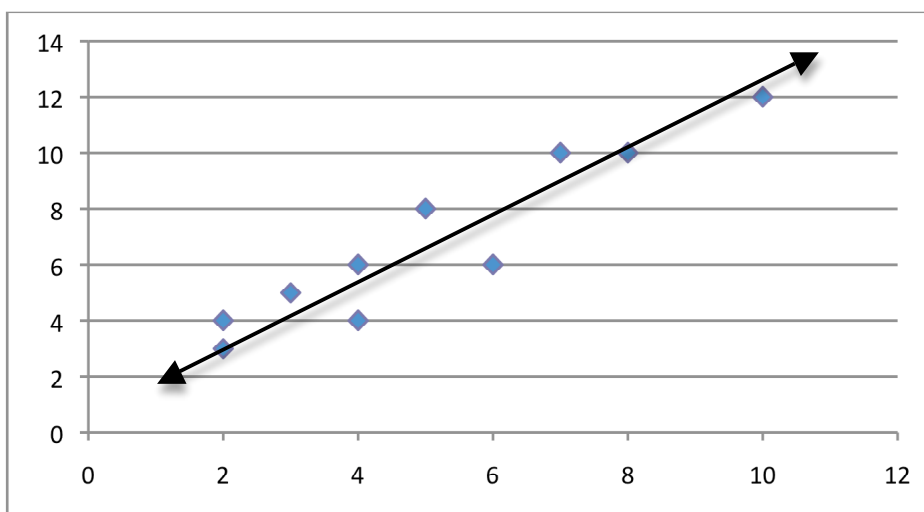
•Calculate the line of best fit using 2 of the methods listed: (Mean-Mean, Median-Median, Difference of Squares)

•Use your equations to predict an outcome in the future and one from the past. (Use both equations so your prediction is a range instead of a single answer.) i.e. \$15-\$16 for 12 blocks.

•Show all your calculation in order to receive credit.

Sample:

Dist.	Money
2	3
2	4
3	5
4	4
4	6
5	8
6	6
7	10
8	10
10	12



Equation of Best Fit: $y = 1.11x + 1.18$

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Quadratic:

- Toss a ball from a set location and keep track of where it lands and how high it goes.
(Retry 10-15 times until your toss has a consistent height and landing spot)
(Keep track of each trial).
 - Use the averages of your data to write a quadratic equation that represents the path of the ball.
 - Graph the parabolic path of your ball. (Label your graph to indicate your data averages.)
 - If the Area under the curve is $A_{(x)} = \frac{2a}{3}x^3 + bx^2 + 2cx$, where x is the horizontal distance from the peak of the ball to its landing point, calculate the area under the curve created by the flight of your ball.
- Note:** a , b , and c are the same as those used in the Quadratic Equation.
- Show all your work to receive credit.

Sample:

