

Name Mine

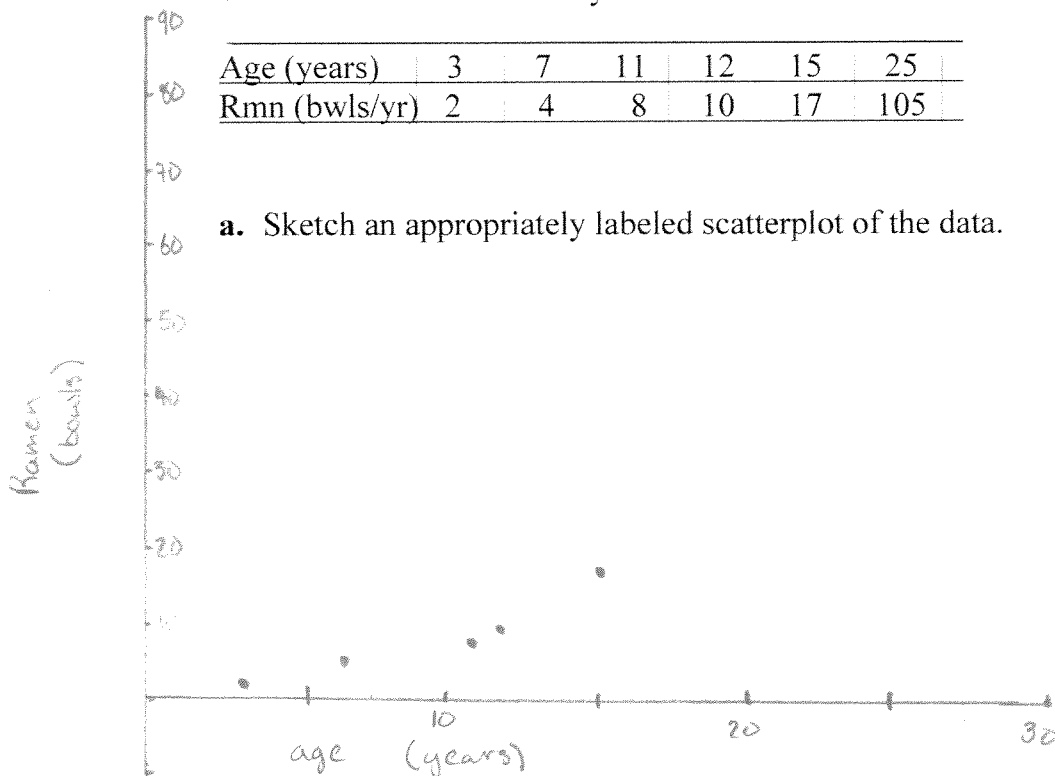
Date \_\_\_\_\_

**Math 111: Final Review 2b**

1. As humans age they enjoy eating ramen noodles more. Some ages and number of bowls of Ramen eaten in a year are listed below •

Age (years)	3	7	11	12	15	25
Rmn (bwls/yr)	2	4	8	10	17	105

- a. Sketch an appropriately labeled scatterplot of the data.



- b. (calculator solution ok) Choose an exponential, quadratic, logarithmic, or linear regression model that most closely fits the data. Explain why you chose that regression model. Do not round the parameters your calculator provides for the model you chose.

Lin:  $r^2 = 0.800$   
 Quad:  $R^2 = 0.994$   
 Ln:  $r^2 = 0.489$   
 Exp:  $r^2 = 0.9991$

Exp Regression

$$y = 1.136624106(1.197877926)^x$$

- c. Using your model, find how old you will be before you would enjoy two bowls a month.

$$2(12) = 24/\text{year}$$

$$24 = 1.136624106(1.197877926)^x$$

$$\ln 21.11516012 = x \ln 1.197877926$$

$$3.049991272 = x \ln(1.197877926)$$

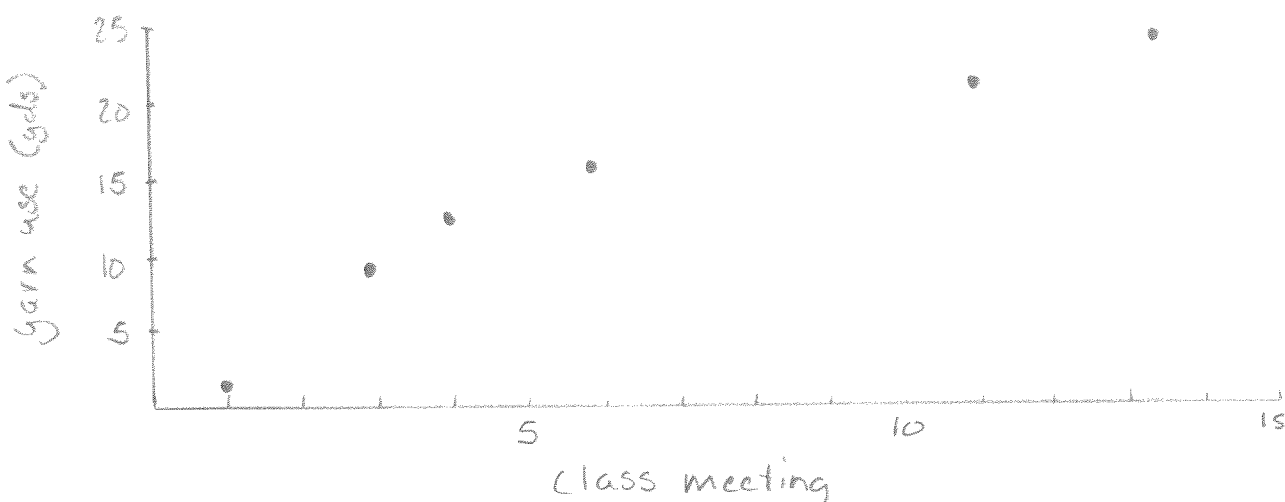
$$16.89262979 = x$$

17 years old

2. Knitting has become very popular lately. In Ms Ericksen's class, average yarn use is increasing every class meeting. Below are some class meetings and lengths of yarn used:

Class	1	3	4	6	11	14
Yarn (vrds)	1	10	12.5	16	21	23

- a. Sketch an appropriately labeled scatterplot of the data.



- b. (calculator solution ok) Choose an exponential, quadratic, logarithmic, or linear regression model that most closely fits the data. Explain why you chose that regression model. Do not round the parameters your calculator provides for the model you chose.

Lin:  $r^2 = 0.870$   
 Quad:  $R^2 = 0.980$   
 ln:  $r^2 = 0.999 \checkmark$   
 Exp:  $r^2 = 0.583$

ln Reg:  $y = 0.940936494 + 8.35919779 \ln x$

- c. Using your model, What class meeting will require you to bring 100ft of yarn?

$100 \text{ ft} = 33.\bar{3} \text{ yd}$

$33.\bar{3} = 0.940936494 + 8.35919779 \ln x$

$32.39239684 = 8.35919779 \ln x$

$3.875060461 = \ln x$

$48.18561153 = x$

the 48<sup>th</sup> meeting