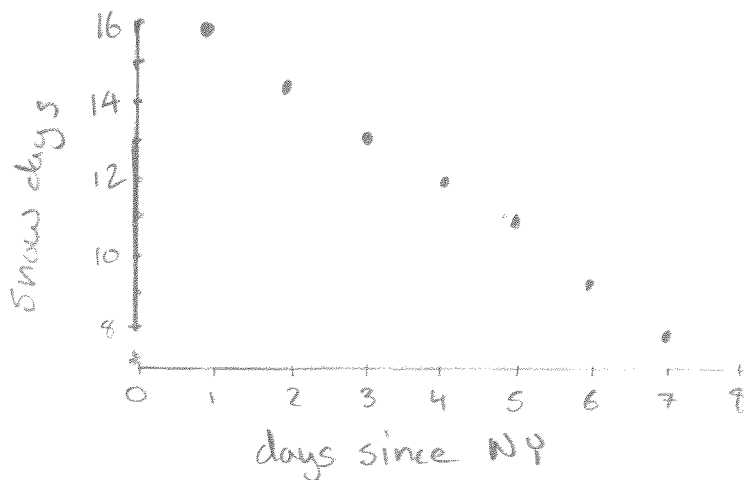


# Math 111: Final Review 2

1. As winter continues, the chance of another snow day decreases. The number of school days since New Years and the historical number of snow days remaining:

days since NY	1	2	3	4	5	6	7
snow days	16	14.5	13	12	11	9.5	8

- 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.

$$\begin{array}{l} \text{Lin } r^2 = .99539 \\ \text{Quad } R^2 = .99539 \\ \text{Ln } r^2 = .93167 \\ \text{Exp } r^2 = .98287 \end{array} \left. \begin{array}{l} \\ \\ \\ \end{array} \right\} \text{same Eq}$$

$$f(x) = -1.285714286x + 17.14285714$$

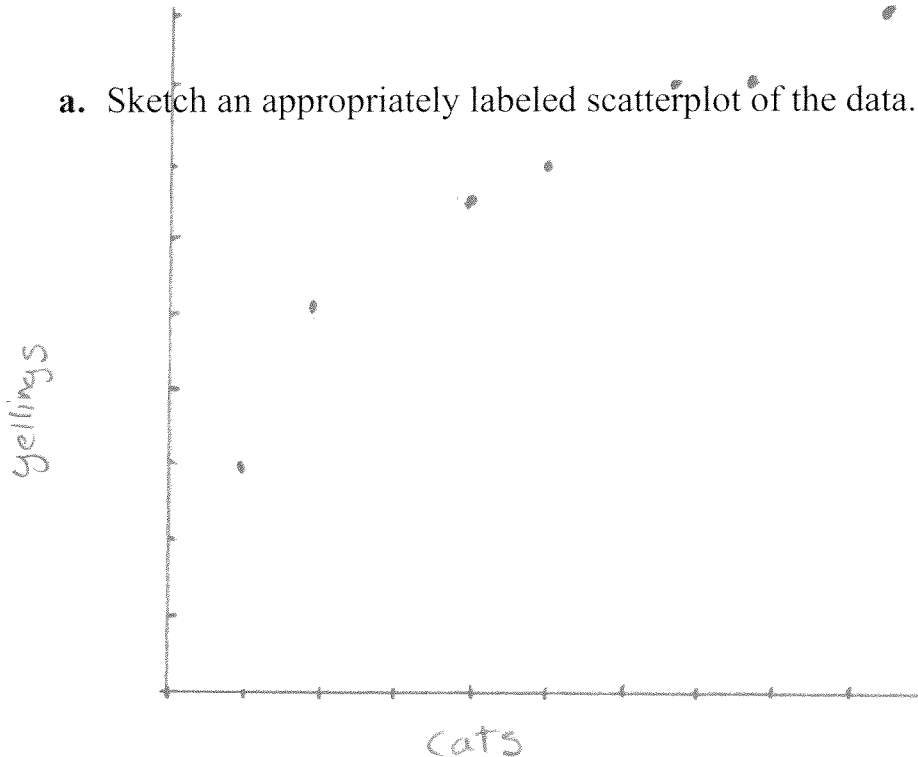
- c. Using your model, find how many days until there are no snow days left.

$$\begin{aligned} f(x) &= 0 = -1.285714286x + 17.14285714 \\ -17.14285714 &= -1.285714286x \\ \frac{-17.14285714}{-1.285714286} &= x = 13.\bar{3} \quad 14 \text{ days} \end{aligned}$$

2. As old ladies increase the number of cats they own, their husbands, old men, yell more often at kids to get off their lawns. Cats and Lawn yellings are recorded in the table below:

cats	1	2	4	5	7	8	10
yellings	3	5	6.6	7	8	8	9

- 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  $r^2 = .90257$   
 Quad  $R^2 = .97009$   
 Ln  $r^2 = .99680 \checkmark$   
 Exp  $r^2 = .7972$

$$y = 3.09875619 + 2.486688991 \ln x$$

- c. Using your model, how many cats will it take to cause more than 10 yellings?

$$10 = 3.09875619 + 2.486688991 \ln x$$

$$6.901243809 = 2.486688991 \ln x$$

$$2.775274204 = \ln x$$

$$x = 16.04302545$$

17 yellings