AFM ~ Module 1
Linear, Quadratic, Cubic Exponential Functions

Name _____

Find an appropriate function (linear, quadratic, cubic, exponential) to model each set of data. You should look at the scatterplot of the original data as well as check residual plots to make your decision.

1. Dogs age differently than humans do. You may have heard someone say that a dog ages 1 year for every 7 human years. However, that is not the case. The table below shows the relationship between dog years and human years.

Dog years	1	2	3	4	5	6	7
Human years	15	24	28	32	37	42	47

Which model? Cubic   Equation: $y = .14x^3 - 1.82x^2 + 11.97x + 5.14$

2. A student standing on the top of the bleachers throws a football across the field. The data that follows gives the height of the ball in feet versus the second since the ball was thrown.

Time	0.2	0.6	1	1.2	1.5	2	2.5	2.8	3.4	3.8	4.5
Height	92	110	130	134	142	144	140	132	112	90	44

Which model? Quadratic   Equation: $y = -16.14x^2 + 64.37x + 79.78$

3. The time it takes for a set number of students to complete the wave is shown in the table below.

# of students	4	5	6	7	8	9	10	11	12	13
seconds	3.1	4.4	3.7	4.8	4.5	6.8	6	7.4	6.9	8

Which model? Linear   Equation: $y = .52x + 1.3$

4. The amount of board feet (in 100s) based on the age of the tree.

age	0	10	20	40	60	70	80	90	100
Board feet	1.9	3.3	6.1	19.1	61.4	109.9	196.8	352.4	631.1

Which model? Exponential   Equation: $y = 1.88(1.06)^x$