Name _____ Date _____

Using Linear and Absolute Value Functions

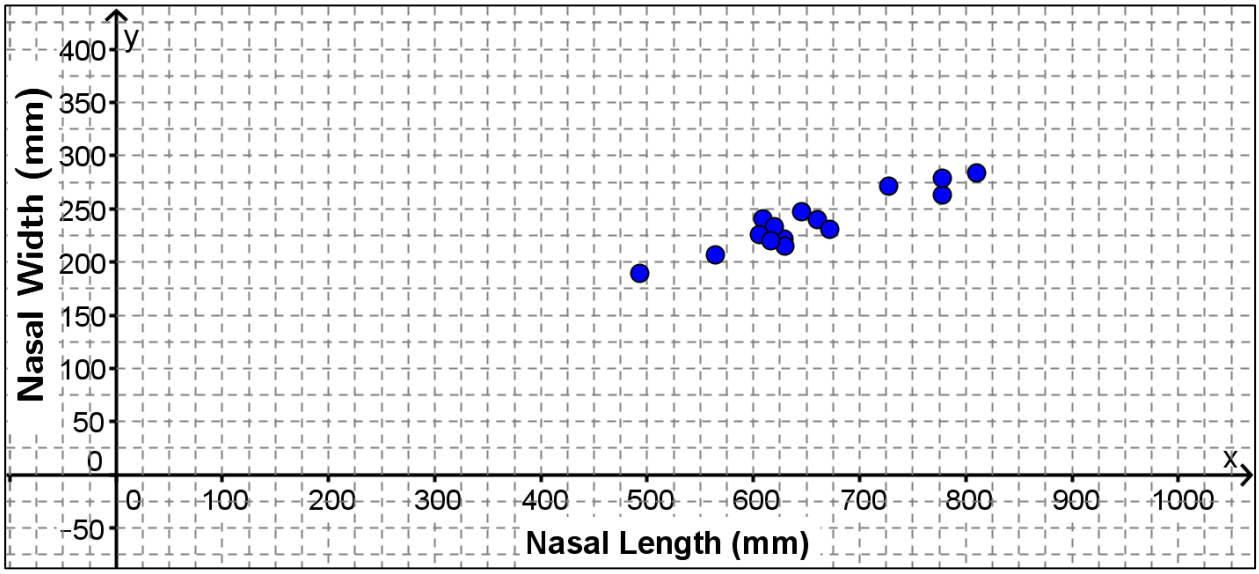
Engage – Answer Key

Directions: Use the information in the problem to complete the table and answer the questions.

A group of Australian researchers measured the nasal length and nasal width of a random sample of grey kangaroos. The table shows a set of the data they collected.

Nasal Length (mm)	Nasal Width (mm)
609	241
629	222
620	233
564	207
645	247
493	189
606	226
660	240
630	215
672	231
778	263
616	220
727	271
810	284
778	279

1. Use technology to make a scatterplot of nasal width versus nasal length. Do you think the data represent a linear, quadratic, or exponential function? Explain your reasoning.
   The data appear to represent an increasing linear function. The points in the scatterplot do not all fall along one line, but they do cluster around a line ranging from about (500, 200) to about (800, 275).



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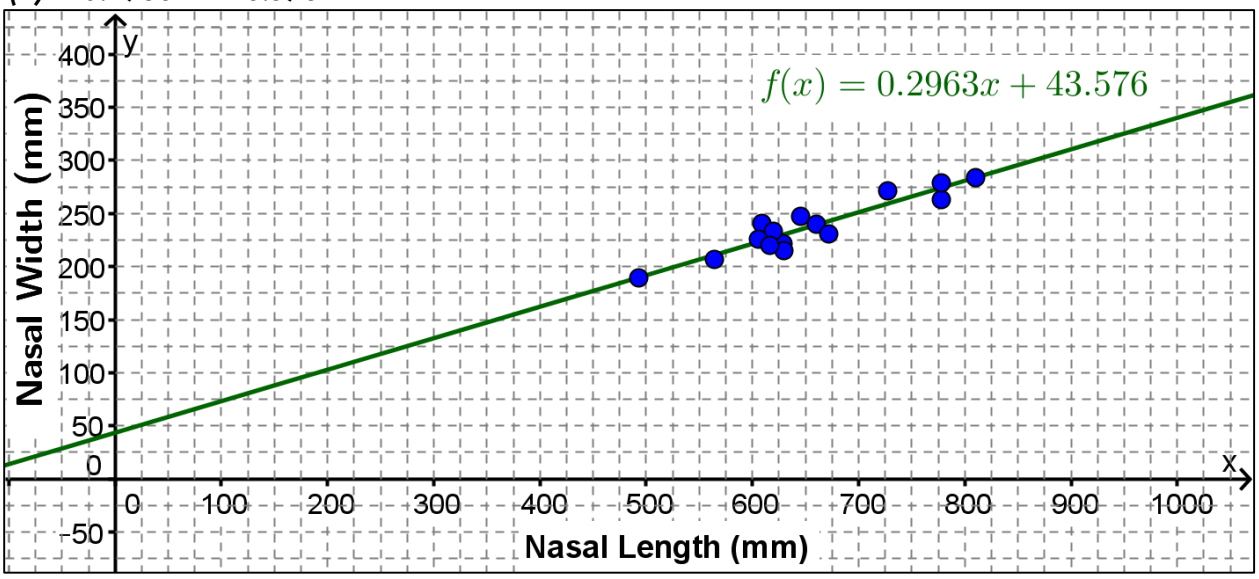
2. Use technology to generate a regression model that is appropriate to the type of function you believe best matches the data set. Record the function generated by the regression model and graph the function over your scatterplot.
f(x) = 0.2963x + 43.576



3. Based on the data set and the regression model, how wide would you expect the nose of a kangaroo to be if its nose were 350 millimeters long? Explain your answer using both the regression model and its line or curve of best fit on your graph.
About 147 millimeters
Using the regression model, f(350) = 0.2963(350) + 43.576 = 147.281 millimeters.
In the graph, the point on the line of best fit with an x-coordinate of 350 is (350, 147.28).