

Polynomial Regression

Learning Objectives

- Perform a polynomial regression with a calculator
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Perform a polynomial regression with a calculator

1. A shipping company was interested in how shipping weights related to the height of packages. The following data was collected from a sample of packages shipped through a single warehouse, with height measured in inches and weight measured in ounces.

Package	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Height of Package (inches)	0.5	1	1	1.5	1.5	2	2.5	2.5	3	3.5	4	5	5.5	6
Weight of Package (ounces)	23.6	14.8	14.5	24.5	22.4	33.1	36.6	48.6	38.9	56.3	36.6	44	31.9	42.9

Find a cubic regression equation using technology that best fits the data.

2. What is the domain of the resulting function? Round your answer to the nearest tenth of an ounce. [Hint: when does the function produce predictions that no longer make sense in the real world?]

ANSWER KEY

1. $y = -0.1671x^3 - 0.7449x^2 + 15.48x + 6.1067$

2. $(0, 7.9]$