

LESSON 11.2 Assignment

Name _____ Date _____

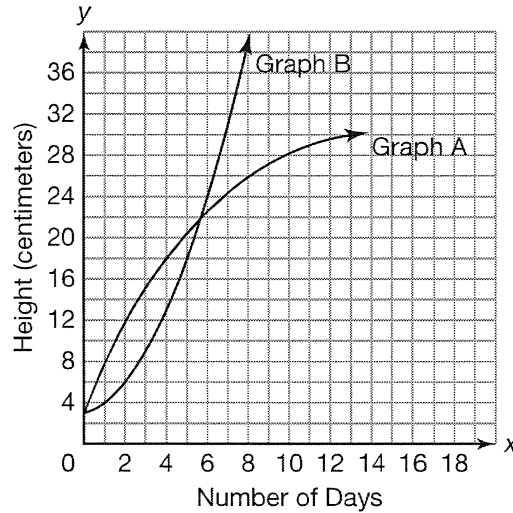
Just U and I Comparing Linear and Quadratic Functions

1. The Quickgrow Fertilizer Company is working on different formulas for flower fertilizers. The table shows the growth of unfertilized plant A and the growth of fertilized plant B.

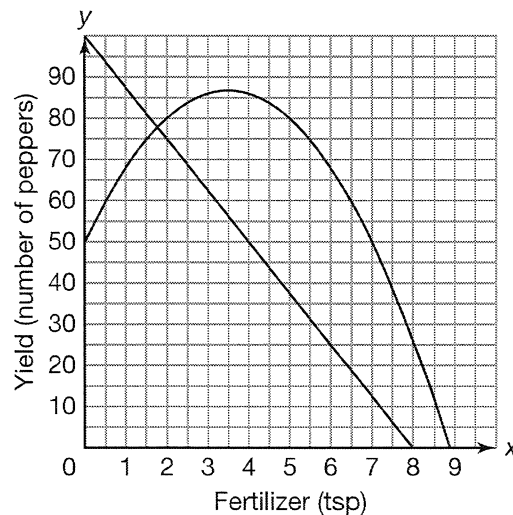
Time (days)	Height of plant A (centimeters)	Height of plant B (centimeters)
0	4	3
1	6	4
2	8	6
3	10	9
4	12	13
5	14	18
6	16	24

- a. Which plant height would be represented by a linear function? Which would be represented by a quadratic function? Explain your reasoning.
- b. Would the function $A(x) = -2x + 4$ or $A(x) = 2x + 4$ represent the growth of plant A? Explain using leading coefficients.

c. Would Graph A or Graph B represent the growth of plant B? Explain using second differences.



2. The Quickgrow Fertilizer Company has run into problems while experimenting with a type of fertilizer that is supposed to increase yield of pepper plants. The yield for plant C can be represented by the function $C(x) = -12.5x + 100$. The yield for plant D can be represented by the function $D(x) = -3x^2 + 21x + 50$. The graphs of the yields for both plants are shown.



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- a. Determine the y -intercept(s) of each function and describe the meaning of each in terms of the problem situation.
- b. Determine the x -intercept of the linear function algebraically. Describe the meaning in terms of the yield for plant C.
- c. Determine the x -intercept(s) of the quadratic function. Then, describe the meaning of each in terms of the problem situation.
- d. Determine the absolute maximum of the quadratic function. Explain what it means in terms of the yield for plant D.