Name _____ Date _____ Class _____

LESSON 9-1

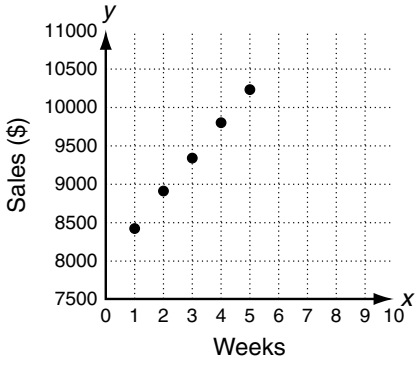
Problem Solving

Multiple Representations of Functions

The table shows a record of sales for the first five weeks. To break even, sales must be at least $12,500 each week. Assume the sales trend will continue. What can be expected over the next weeks?

Weekly Store Sales	
Week	**Sales ($)**
1	8470
2	8920
3	9360
4	9790
5	10,210

1. Graph the data using weeks as the independent variable and sales as the dependent variable.



2. Check second differences to see if the sales data can be modeled using a quadratic function. Explain how you know if a quadrtic function is reasonable.

_____

3. Use a graphing calculator to perform the appropriate regression on the data. Write the equation that models the data. _____

4. What sales can be expected in week 6? _____

5. When will her sales exceed $11,000 per week? _____

6. Which week can sales be expected to exceed $112,500? _____

7. Which week can sales be expected to be twice the sales of week 1? _____

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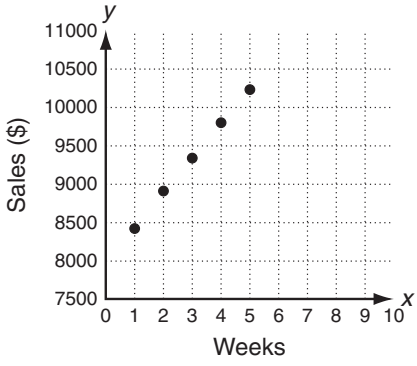

2. Check second differences to see if the sales data can be modeled using a quadratic function. Explain how you know if a quadrtic function is reasonable.

Yes, because second differences are constant. For a quadratic function, second differences are constant.

3. Use a graphing calculator to perform the appropriate regression on the data. Write the equation that models the data. $y = -5x^2 + 465x + 8010$

4. What sales can be expected in week 6? **$10,620**

5. When will her sales exceed $11,000 per week? **Week 7**

6. Which week can sales be expected to exceed $112,500? **Week 11**

7. Which week can sales be expected to be twice the sales of week 1? **Week 28**