Day 2 Notes

Tuesday, August 25, 2015
7:49 AM

Precalculus **1.1 – Mathematical Modeling** Name _____

1. iPhone Sales
   Worldwide sales of iPhones per year:

Fiscal Year	Number of iPhones sold
2007	1,389,000
2008	11,625,000
2009	20,731,000
2010	39,989,000
2011	72,300,000
2012	125,044,000
2013	116,400,000
2014	169,220,000

Lin Reg
$y = 24332642x - 18590550$

Exp Reg
$y = 59150 \cdot 1.8^x$

Quad Reg
$y = 1925702x^2 - 16107107x + 16293250$

a. Enter the data in your Calculator: STAT: Edit: L1 (Year), L2 (iPhones sold)
b. Turn on STAT PLOT, find a good WINDOW, and look at your data. Draw what you see here:

c. Go to STAT: CALC and try Regression models to find a good fit to the data. Write your equation here:

d. Why do you think iPhone sales were down in 2013 but went up in 2014?

New iphone?

e. Will sales continue to increase in the same manner indefinitely? Why or why not?

Vary

(#2-5) The table below lists the price of the base model Amazon Kindle since the device debuted in November, 2007.

Date	Months after Nov. 2007	Kindle Price
November, 2007	0	$399
February, 2009	15	$359
July, 2009	20	$299
October, 2009	23	$259
June, 2010	31	$189
August, 2010	33	$139
May, 2011	42	$109
September, 2011	46	$79

2. Graph a scatter plot of the data. Let L1 represent the number of months since November, 2007 and let L2 represent the Kindle price (in dollars).

3. Use the "linear regression" feature on your calculator to determine a linear model for the data. Record the equation here.

$y = -7.71x + 431.28$

4. What does the slope of this linear model represent?

the slope represents the decline in Kindle prices since November 2007

5. According to your linear model, when will the price of the base model Kindle reach $0, indicating that Amazon would give the product away for free? (Be sure to convert your answer to a month and year).

$0 = -7.71x + 431.28 \rightarrow x = 56$ months

$-431.28 = -7.71x$

July, 2012

(#6-9) The table below lists the worldwide sales of iPhones per year:

Fiscal Year	# of iPhones Sold
2007	1,389,000
2008	11,625,000
2009	20,731,000
2010	39,989,000
2011	72,300,000
2012	125,044,000
2013	116,400,000
2014	169,220,000

6. Graph a scatter plot of the data. Let L1 represent the year and let L2 represent the number of iPhones sold.

7. Does linear regression best fit this data? Play around with your calculator – what might make more sense? Record your equation of best fit below.

8. Why do you think iPhone sales were down in 2013 but up in 2014?

9. Will sales continue to increase in the same manner indefinitely? Why or why not?

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