Homework Assignment 11: Due at the beginning of class 10/17/01

1.   Figure 1 (below) shows the graph of a polynomial function. Find an equation for this polynomial function.
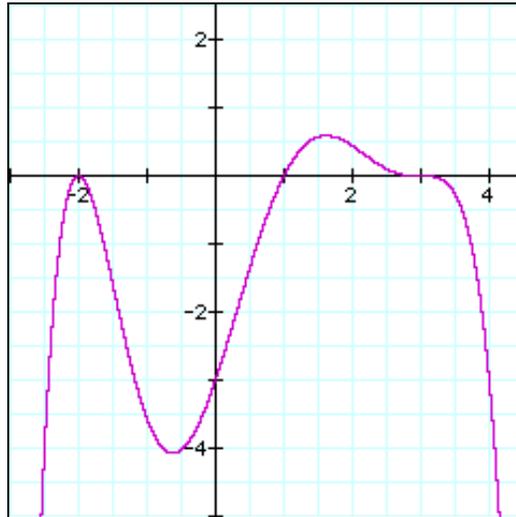

Figure 1: Find an equation for the polynomial function graphed here.

2.   Figure 2 (below) shows the graph of a rational function. Locate the vertical and horizontal asymptotes of the rational function and then use these to find an equation for the rational function.
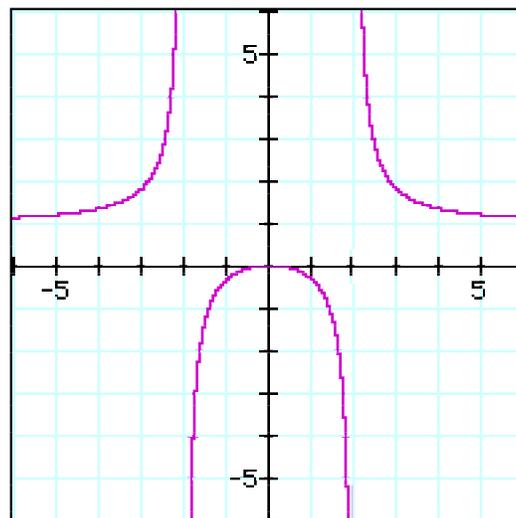

Figure 2: Locate the vertical and horizontal asymptotes and find an equation for the rational function.

Figure 3 (below) shows a graph[1] of share price versus time for the media conglomerate AOL-Time Warner (NYSE: AOL). Question 3 uses this data.
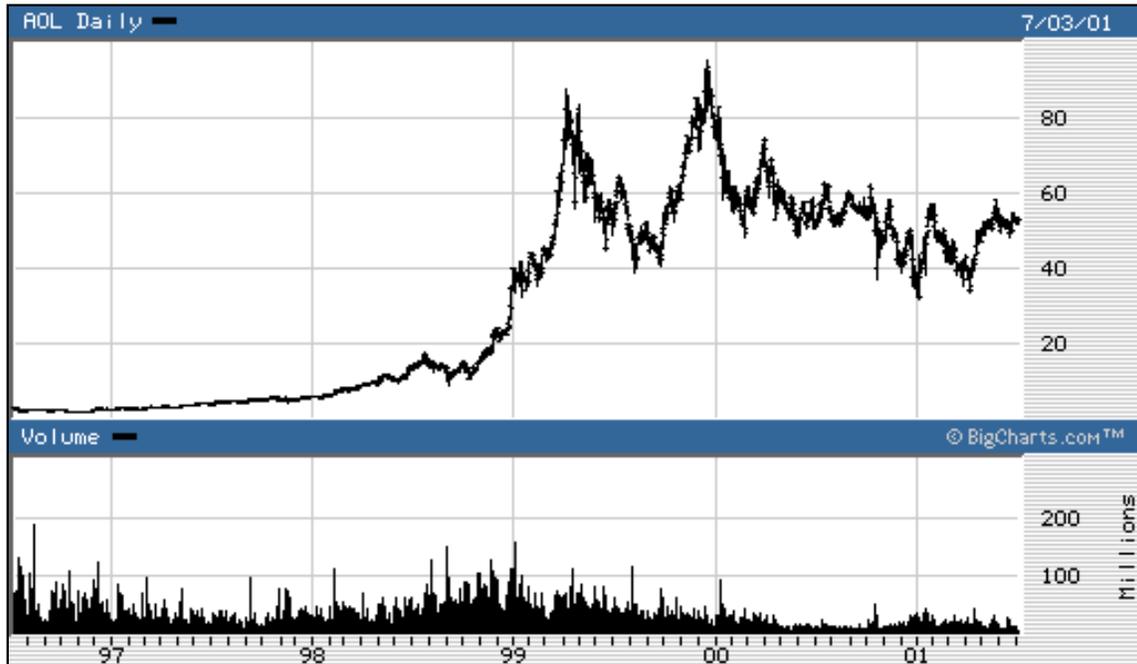

Figure 3: Share price and volume traded for AOL Time Warner, July 1997-July 2001.

3. Use Figure 3 to complete Table 1 shown below. Based on the overall, large-scale shape of the graph in Figure 3, what kind of polynomial function would do a reasonable job of representing share price as a function of time? Use the regression capabilities of your calculator and the values from Table 1 to find an equation for share price as a function of time.

Date	AOL Time Warner Share Price ($)
12/1997	
12/1998	
12/1999	
12/2000	

Table 1

Your answer to this question should (at minimum) include:

- A completely filled out Table 1.
- A description of the kind of polynomial function your think would do a reasonable job of giving share price as a function of time.
- An equation, with a clear description of what your variables actually represent.

Table 2 (below) gives the earnings per share (EPS) for AOL-Time Warner[2]. Question 4 makes use of this data.

Year	1998	1999	2000	2001	2002
EPS ($)	0.3	0.48	0.58	1.22 (estimated)	1.57 (estimated)

Table 2: Earnings per Share for AOL-Time Warner, 1998-2002.

4. Plot a graph showing the EPS of AOL-Time Warner versus time. Based on your plot, what kind of polynomial function would do a reasonable job of representing the EPS as a function of time? Use the regression capabilities of your calculator and the data in Table 2 to find an equation for EPS as a function of time.

Your answer to this question should (at minimum) include:

- A graph showing EPS versus time.
- A description of the kind of polynomial function your think would do a reasonable job of giving EPS as a function of time.
- An equation, with a clear description of what your variables actually represent.

5. The price-to-earnings (PE) ratio of a stock is defined to be the price of one share of the stock divided by the earnings per share (EPS). Find an equation that will give the PE ratio of AOL-Time Warner stock as a function of time. What would a graph of PE ratio versus time look like when AOL-Time Warner did not make a profit? (That is, when the earnings per share (EPS) is equal to zero.)

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[2] Source: Yahoo Financial Services, Inc.