**Chapter 7 Practice Test**

1. Graph the functions by hand. State the domain, range, and vertex of each function. Show your work.
   1. b.



Domain: all real numbers Domain: all real numbers

Range: Range:

Vertex: Vertex:

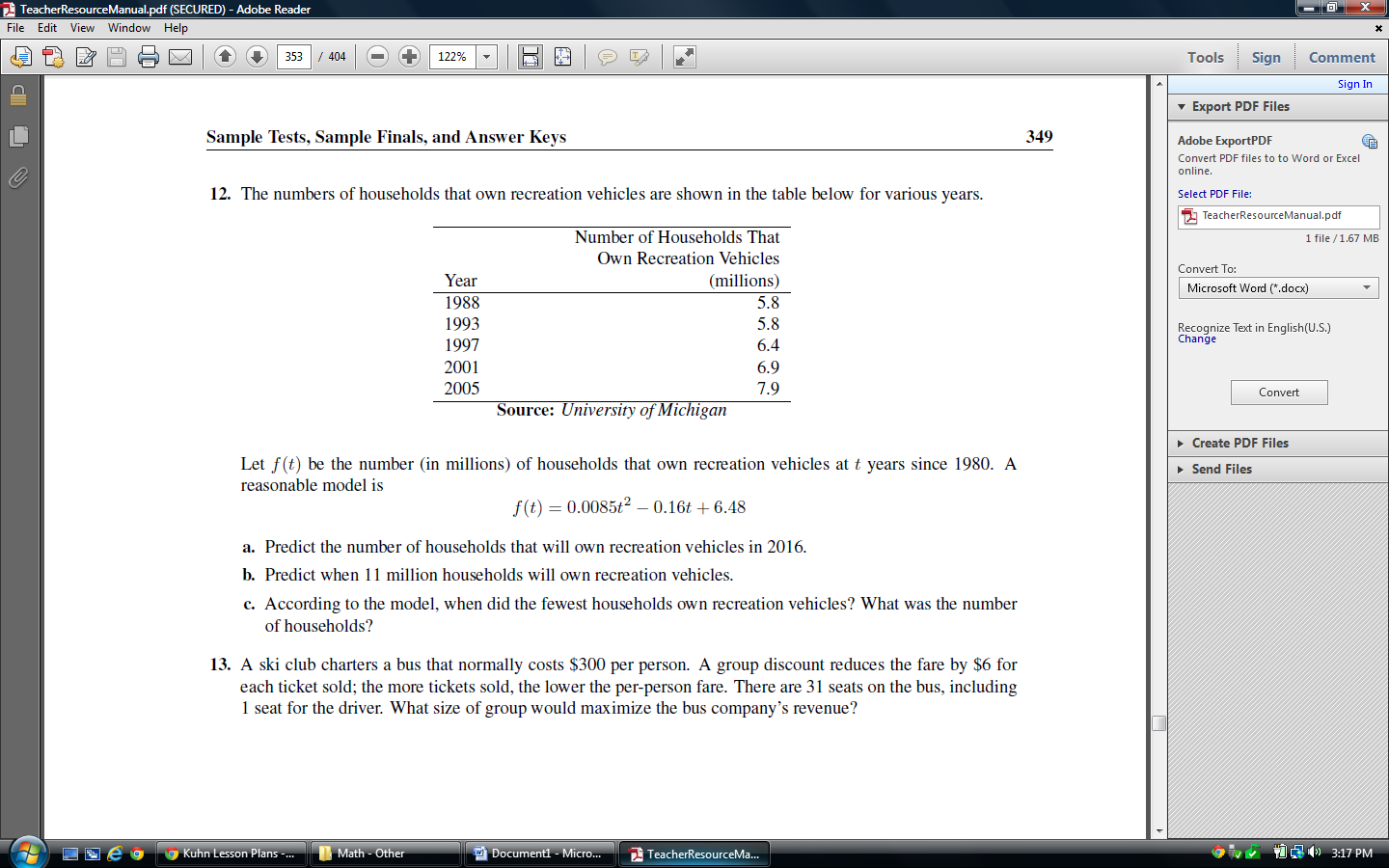
1. Use the discriminant to determine the number and type of solutions of the equation . Show your work.

2 imaginary solutions

1. Solve the following quadratic equations using the square root property.
   1. b.

1. Solve the following quadratic equations using by completing the square.
   1. b.

1. Solve the following quadratic equations using the quadratic formula.
   1. b.

1. Find an equation of the parabola that contains the points . Do this algebraically and show your work.
2. A baseball is hit by a batter. The height (in feet) of the ball after seconds is given by:
   1. What was the height of the ball when the batter made contact?
   2. What was the maximum height of the ball?
   3. When did the ball reach the maximum height?
3. The numbers of households that own recreational vehicles (RVs) are shown in the table for various years. Let be the number (in millions) of households that own recreational vehicles at years since 1980.
   1. Use a quadratic regression to find the equation that will model the data well. Round to four decimal places for your a, b, and c values.
   2. Use the equation to predict the number of households that will own RVs in 2016. Show your work.
   3. Use the equation to predict the year(s) in which 20 million households will (or did) own RVs. Show your work.
4. A ski club charters a bus that normally costs $300 per person. A group discount reduces the fare by $6 for each ticket sold; the more tickets sold, the lower the per-person fare. There are 31 seats on the bus, including 1 seat for the driver.
   1. What size of a group would maximize the bus company’s revenue?
   2. What would the maximum revenue be?
5. A rancher plans to use 500 feet of fencing and a side of his barn to form a rectangular boundary for cattle. What dimensions of the rectangle would give the maximum area? What is that area?
6. Find the x-intercepts.
   1. b.