

Math 70 - Fall 2007 Test 2 Wednesday November 14th

a. Show all your work, b. Simplify, c. Box your answers

1). Given  $f(0) = 5$  and  $f(1) = 15$ ,

a). Find the formula for the exponential function satisfying above.

b). Is this a growth or a decay function? explain.

c). Find the growth or decay rate in percentage.

2). Between 1985 and 2005 the rent for a two bedroom apartment in San Francisco went up from about 1000 dollars per month to 2000 dollars per month. An increase of 100% in this 20 year period. If the rent continues to go up by 100% every 20 years. What will the rent be in 2025? What will the rent be in 2045? (first construct the function).

3). For the following function  $f(x) = -2(x - 2)^2 + 4$ ,

a). Find the vertex

b). What is the axis of symmetry

c). Find the y-intercept

d). Sketch the graph

4). Transform the function  $f(x) = x^2$  into a new function  $g(x)$  by:

(i). Stretching  $f(x)$  by a factor of 2

(ii). Shifting the result horizontally right 3 units

(iii). Shifting down by 5 units

(iv). Reflecting across x-axis

5). Find the zeros of the following quadratic functions:

a).  $f(x) = x^2 + 5x + 6$

b).  $f(x) = 3x^2 - 2x + 1$

EXTRA CREDIT

A). Find the exponential function that goes through the points (2,6) & (-1,2)

B). Find the solution to the following quadratic equation

$$\frac{x^2}{8} = \frac{x-1}{2}$$