Math 3200

Unit 7 Chapter 7 Test: Exponential Functions

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Part A: Multiple Choice – Circle the letter of the correct response. (10 Marks)**

|  |
| --- |
| 1. Which equation best represents the graph shown?   a)  b)  c)  d)   1. Which graph best represents ?   a)  b)  c)  d)   1. What is the equation of the horizontal asymptote of *y* = 2(4) x - 3? |
| 1. What is the range of the function: ? |
| 1. What is the equation of the image of under the mapping rule ? |
| 1. Which mapping rule transforms ?   a)  b)  c)  d)   1. Which expression is equivalent to ?   a)  b)  c)  d)   1. Solve for *x*: ? 2. 0 3. 2 4. 3 |
| 1. Solve for *x*:   a)  b)  c)  d) |
| 1. If a radioactive substance has a half-life of 5 days, which equation can be used to determine   the amount, *A*, remaining after, *d*, days of an initial amount of 10mg?  a)  b)  c)  d) |

**Part B – Response Questions. (20 Marks) Answer all of the following questions in the**

**space provided. You must show all workings to receive full marks.**

1. The graph of is transformed to obtain the graph of . Write the corresponding mapping rule, describe the transformations and state the range and equation of the horizontal asymptote. (5 marks)

Mapping Rule: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Description:

Range: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Horizontal Asymptote: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. A certain radio-active isotope is known to have a half-life of 42.5 years. If there were 48mg present initially, algebraically calculate how long it will take to decay to 3mg.

(4 marks)

1. Algebraically solve each of the following for *x*:

1.  (4 marks)
2.  (4 marks)
3. A savings bond offers interest at a rate of 6% per year, compounded semi-annually. You have been given a $500 scholarship that you decide to invest in this savings bond. Write an equation and use it to algebraically determine the value of your investment after 5 years. (3 marks)