**Mathematics 3200**

**Test Unit 7/8**

**Exponential/Logarithmic Functions**

**Name:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Part A**: Place the letter corresponding to the correct answer to each of the following in the blank at the

 right.

1. Which of the following is an decreasing exponential function? 1. \_\_\_\_

 (A)  (B) 

 (C)  (D) 

2. Which transformation of produces the graph for ? 2. \_\_\_\_

|  |  |  |
| --- | --- | --- |
|  | **Horizontal Translation** | **Vertical Translation** |
| (A) | 10 Left | 3 Down |
| (B) | 10 Right | 3 Down |
| (C) | 5 Left | 3 Up |
| (D) | 5 Right | 3 Up |

3. What is the range for the function defined by the equation ? 3. \_\_\_\_

 (A)  (B) 

 (C)  (D) 

4. What is the equation for the horizontal asymptote for the equation ? 4. \_\_\_\_

 (A)  (B) 

 (C)  (D) 

5. Solve  5. \_\_\_\_

 (A)  (B) 

 (C)  (D) 5

6. Which transformation of produces the graph for ? 6. \_\_\_\_

|  |  |  |
| --- | --- | --- |
|  | **Horizontal Stretch Factor** | **Vertical Stretch Factor** |
| (A) |  |  |
| (B) | 2 |  |
| (C) |  | 4 |
| (D) | 2 | 4 |

7. Solve  7. \_\_\_\_

 (A) -3 (B) 

 (C)  (D) 3

8. What is the y intercept of the equation  ? 8. \_\_\_\_

 (A) -40 (B) -7

 (C) -3 (D) 32

9. Solve  9. \_\_\_\_

 (A)  (B) 

 (C)  (D) 

10. Solve:  10. \_\_\_

 (A) -0.53 (B) -0.04

 (C) 0.04 (D) 0.53

11. What is the x intercept for ? 11. \_\_\_

 (A) -5 (B) -1

 (C) 14 (D) 18

12. What is the mapping rule for ? 12. \_\_\_

 (A)  (B) 

 (C)  (D) 

13. Solve:  13. \_\_\_

 (A)  (B) 

 (C)  (D) 

14. What is  in logarithmic form? 14. \_\_\_

 (A)  (B) 

 (C)  (D) 

15. Which of the following is  in exponential form? 15. \_\_\_

 (A)  (B) 

 (C)  (D) 

16. Solve:  16. \_\_\_

 (A) 4 (B) 5

 (C) 15 (D) 100

17. What is written as a single log? 17. \_\_\_

 (A)  (B) 

 (C)  (D) 

18. What is the domain for ? 18. \_\_\_

 (A)  (B) 

 (C)  (D) 

19. Simplify:  19. \_\_\_

 (A) -8 (B) 2

 (C) 3 (D) 8

20. Which represents the inverse of the graph of  shown below? 20. \_\_\_

 (A) (B)

 (C) (D)

21. Solve for: . 21. \_\_\_

 (A) 3 (B) 4

 (C) 8 (D) 16

22.The temperature, *T*, of a cup of coffee with respect to time, *m*, in minutes is given by the 22. \_\_\_

equation below. What is the initial temperature, in degrees Celsius, of the coffee?

 

 (A) 22 (B) 73

 (C) 90 (D) 95

**Part B :** Answer each question and show all workings.

1. Solve each of the following

 (A)  (B) 

2. Solve each of the following

 (A)  (B) 

3. The intensity of sound is measured in decibels(dB). The level of sound, B, in decibels, is given by

 , where is the intensity of sound , in Watts per square metre(W/m2) and is

 . What in the intensity of sound inside of a car if its sound level is 39 dB?

4. Solve: 

5. Joe purchases a truck for $50 000 and it depreciates at 50% every 6 year. Dave purchases an

 Antique Super Jag ski doo for $25 000 that decreases in value at a rate of 25% every 4 years. How

 long will it take for the truck and ski doo be equal in value?