**Mathematics 3200**

**Test Unit IV**

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

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

 right.

1. What is the period of ? 1. \_\_\_\_

(A)  (B) 

(C)  (D) 

2. Which graph best represents the sinusoidal function ? 2. \_\_\_\_

(A) (B)

(C) (D)

3. What is the range of the function ? **3. \_\_\_\_**

(A)  (B) 

(C)  (D) 

4. What is the domain of ? 4. \_\_\_\_

 (A)  (B) 

(C)  (D) 

5. A Ferris wheel with a radius of 6 m rotates once every 30 seconds. Passengers get on board 5. \_\_\_\_

 at a point 1 m above the ground at the bottom of the Ferris wheel. Which function models

 this situation?

(A)  (B) 

(C)  (D) 

6. What are the non-permissible values of *x* for the equation  ? 6. \_\_\_\_

(A)  (B) 

(C)  (D) 

7. Which is  expressed as a single trigonometric function? 7. \_\_\_\_

(A)  (B) 

(C)  (D) 

8. Which is a true identity? 8. \_\_\_\_

(A)  (B) 

(C)  (D) 

9. Which is the simplified form of the trigonometric expression ? 9. \_\_\_\_

(A)  (B) 

(C)  (D) 

10. What is the exact value of ? 10. \_\_\_

(A)  (B) 

(C)  (D) 

11. In which step is there an error when simplifying the expression : 11. \_\_\_

 ?

Step 1: 

 Step 2: 

Step 3: 

Step 4: 

(A) Step 1 (B) Step 2

(C) Step 3 (D) Step 4

12. Given that , where , what is the exact value of ? 12. \_\_

(A)  (B) 

(C)  (D) 

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

1. Determine all solutions, in radian measure, for the equation: 

2.  and  are both in Quadrant II,  and . Determine the exact value of

 .

3. Verify the trigonometric identity: 

4. Solve the trigonometric equation shown below for : 

5. Simplify : 

6. Prove : 

7. A Ferris Wheel has a diameter of 50 m and rotates once every 35 seconds. Mr. Math is presently

 sitting in a chair at the top of the Ferris Wheel, 53 metres above the ground. The wheel begins to

 move in a counter clockwise direction. Write an equation that expresses Mr. Math’s height as of

 function of time for the rotation of his ride on the Ferris Wheel.

8. Solve : 