QUIZ 5.1 – 5.3

**Multiple Choices [4]**

1. Find the MRAM approximation for the area of the shaded region (under the curve between 0 and 4), using 8 subintervals of equal width.  
   A graph of a function

   Description automatically generated  
     
   A) 4.425 B) 4.480 C) 6.719 D) 8.959
2. The expression is a Riemann sum approximation for   
     
   A) B) C) D)
3. The table shows selected values for a continuous function *f* over the interval .

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 2 | 3 | 5 | 8 |
|  | 8 | 22 | 72 | 142 |

Using the subintervals , and , what is the trapezoidal approximation of ?  
  
A) 268 B) 338 C) 430 D) 592

1. The graph of a piecewise linear function *f* is shown below.   
   A graph of a function

   Description automatically generated  
   If *g* is the function defined by , determine .  
     
   A) -6 B) -4 C) 4 D) 6

**Free Response Questions:**

1. The graph of *f* below consists of line segments and a semi-circle. [4]  
   Evaluate each definite integral.  
   A graph of a function

   Description automatically generated  
     
   a)   
     
     
     
     
   b)   
     
     
     
     
   c)   
     
     
     
     
   d)
2. a) Write the following integral as the limit of a Riemann sum: [1.5]  
     
     
     
     
   b) Write the following limit as an integral: [1.5]
3. Consider the following graph: [3]  
   A graph of a function

   Description automatically generated  
   Using 4 rectangles, determine an approximation of the shaded region (under the curve between 1 and 5) with the given method:  
     
   a) LRAM  
     
     
     
     
     
     
   b) RRAM
4. Use your calculator to determine to the nearest thousandth. [1]
5. Given and , evaluate: [4]  
     
   a)   
     
     
   b)   
     
     
   c)   
     
     
   d)
6. Given and , evaluate: [3]  
     
   a)   
     
     
   b)   
     
     
   c)
7. Determine the exact value of the average value of the following function on the interval :   
    [2]