**MATH 422 Math for Business Applications Fall 2023**

Weekly Quiz 11/30/23 **Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Directions:** Please answer the following questions to the best of your ability. Provide reasoning when asked. Quizzes will all be 15 points each. A calculator is necessary for portions of the quiz.

1. (**3 points**) Select the statement that BEST describes what the derivative of a function measures:
   1. The derivative is a measure of equilibrium
   2. The derivative is a measure of the rate of change of y with respect to x
   3. The derivative is negative when something is increasing very slowly
   4. The derivative is positive whenever something is in motion
2. **(3 points)** Select the statement that is TRUE:
   1. When a function is increasing its derivative is positive
   2. The derivative always exists as long as the function exists
   3. The derivative is 0 at all maximum or minimum values
   4. If the y values of a function are all positive, its derivative is positive everywhere
3. **(3 points)** Select the answer that BEST describes “total cost” in a business setting:
   1. The total cost function is marginal cost + fixed cost
   2. The total cost function is the derivative of marginal cost
   3. The total cost function always decreases
   4. The total cost function is fixed cost + variable cost
4. **(3 points)** Given that and

what is the slope of the graph of f(x) at x = 4 ?

What is the y coordinate of the graph at x = 4 ?

1. **(3 points)** The total cost to produce “x” items is given by

What is the fixed cost?

What is the variable cost?

What is the unit cost (cost per item)?

Formula for Unit Cost: