# Quiz #3

**Directions:** Carefully read each question below and answer to the best of your ability in the space provided. You **MUST** show your work to receive full credit! Your answer to problem # 2 should be written in a clear and concise manner using a combination of complete sentences and symbolic expressions. An answer without explanation or that is poorly presented may not receive full credit.

1. (1 point) Suppose $f$ and $g$ are continuous functions such that $g(3) = 2$ and

$$\lim_{x \to 3} [4f(x) + f(x)g(x)] = 54.$$

   Find $f(3)$.

   A. $\frac{54}{7}$

   B. 5

   C. 9

   D. 0

   E. You cannot find it because $f(3)$ may not exist.

2. (2 points) If $f(x) = 2x^2 + 5$, find $f'(3)$ using the definition of derivative, and use it to find an equation of the tangent line to the curve $y = 2x^2 + 5$ at the point $(3, 23)$.

Name: _____

| Question: | 1 | 2 | Total |
|-----------|---|---|-------|
| Points:   | 1 | 2 | 3     |
| Score:    |   |   |       |