Quiz 2.5 – Linear Approximation

1. (1 pt) alfredLibrary/AUCI/chapter2/lesson5/quiz/question9pet.pg

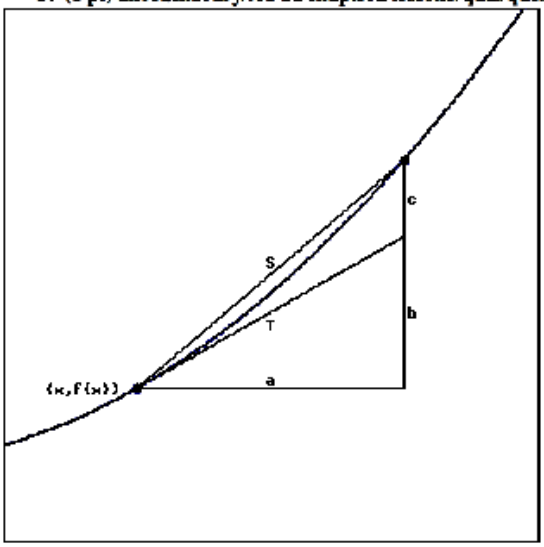
If $y = 2x^3 - 9x^2 - 9x$, then $\frac{d^2y}{dx^2} =$ _____.

(Complete this problem on paper first so you can practice writing Leibniz notation.)

2. (1 pt) alfredLibrary/AUCI/chapter2/lesson5/quiz/question5.pg

If the point $P = (1, -8)$ is on the graph of a function, and the slope of the graph at P is -8, then the slope-intercept form of the tangent line at P is $y =$_____.

3. (1 pt) alfredLibrary/AUCI/chapter2/lesson5/quiz/question2pet.pg



In the figure above, the function f is graphed in blue along with a tangent line and a secant line, both passing through through the point $(x, f(x))$. Using a horizontal disance a, we measure off a portion of the tangent line of length T and a portion of the secant line of length S. In the notation that we use for calculus,

the length Δx is equal to

- A. a
- B. b
- C. c
- D. S
- E. T
- F. a+b
- G. a+c
- H. b+c

the length dx is equal to

- A. a
- B. b
- C. c
- D. S
- E. T
- F. a+b
- G. a+c
- H. b+c

the length Δy is equal to

- A. a
- B. b
- C. c
- D. S
- E. T
- F. a+b
- G. a+c
- H. b+c

and the length dy is equal to

- A. a
- B. b
- C. c
- D. S
- E. T
- F. a+b
- G. a+c
- H. b+c

4. (1 pt) alfredLibrary/AUCI/chapter2/lesson5/quiz/question4.pg

Let $y = -5x^2$.

If $x = 7$ and $\Delta x = 0.85$, then $\Delta y =$___ and $dy =$___.