7-1 Derivatives and Slopes of Tangent lines

Name: _____ Time› Start: _____ Finish: _____ Total Time = _____

Calculate the derivative of each function.

_____ 1. $f(x) = 3x^2 + 5x - 2$

_____ 2. $f(x) = -4x^3 + 5$

_____ 3. $f(x) = 3x^3 + 5x^2 - 2x$

_____ 4. $f(x) = -x^5$

_____ 5. $f(x) = \frac{x^2}{2} + 3x$

_____ 6. $f(x) = -7x^{10} + 5x^4 - 5x^2 + 7x$

_____ 7. $f(x) = 3x^{-3} + 5x^{-1} - 11$

_____ 8. $f(x) = \frac{6}{x}$

_____ 9. $f(x) = \frac{3}{x^2} + \frac{2}{x} - 1$

Find the slope of the line tangent to the graph of the given function at the given point.

_____ 10. $f(x) = 3x^2 + 5x - 2$ at the point (2, 20).

_____ 11. $f(x) = -x^2 + 1$ at the point (4, -15).

_____ 12. $f(x) = x^4 + 5x^2 - 1$ at the point (1, 5).

_____ 13. $f(x) = x^{-5}$ at the point (1, 1).

_____ 14. $f(x) = \frac{6}{x}$ at the point (2, 3).

SAT Questions

_____ 15. What is the average (arithmetic mean) of 8 consecutive odd integers if the least of these integers is x?

A. $x + 5$
B. $x + 6$
C. $x + 7$
D. $x + 8$
E. $x + 9$

_____ 16. When 1.783 is rounded to the nearest whole number, the result is how much greater than when 1.783 is rounded to the nearest tenth?

_____ 17. If an integer n is divisible by both 12 and 20, then it must also be divisible by

A. 15 B. 24 C. 32 D. 80 E. 240

_____ 18. If a, b, and c are positive even integers such that $a < b < c$ and $a + b + c = 60$, then the greatest possible value of c is

A. 36 B. 40 C. 42 D. 54 E. 57