Calculus AB

Name_____

# Worksheet 5 - Derivatives II

Period_____

**Use the definition of the derivative to find the derivative of each function with respect to $x$.**

1) $y = -2x^2 + 1$

2) $y = 3x^2 + 2$

**Differentiate each function with respect to $x$.**

3) $y = \dfrac{2}{3}x^4 - 2x^{\frac{5}{3}} + \dfrac{1}{3}x^{\frac{2}{5}}$

4) $f(x) = 5x^{\frac{5}{3}} + 2x^{-4} - \dfrac{1}{4}x^{-5}$

5) $f(x) = \dfrac{4}{3}x^5 + x^{-1} - \dfrac{1}{2}x^{-5}$

6) $y = \dfrac{1}{3}x^5 - 4x^4 + \dfrac{1}{3}x^3$

7) $f(x) = 4x^{\frac{4}{3}} - \dfrac{5}{4}x^{\frac{1}{3}} - 5x^{-2}$

8) $f(x) = -\dfrac{4}{5}x^{\frac{5}{3}} - x^{\frac{1}{2}} + x^{-4}$

9) $f(x) = 3x^4 - \dfrac{5}{4}x^{\frac{1}{4}} + 2x^{\frac{1}{5}}$

10) $f(x) = -2x^4 + 3x - \dfrac{1}{5}x^{-1}$

11) $f(x) = x^2 + 5x^{-1} - \dfrac{2}{5}x^{-5}$

12) $f(x) = -\dfrac{2}{5}x^3 - \dfrac{5}{2}x^{\frac{1}{2}} + \dfrac{1}{5}x^{\frac{2}{5}}$

13) $f(x) = 2x^2 + \sin x - \cos x$

14) $g(x) = \ln x + 2\cos x - 2x^{-1}$

15) $h(x) = -3\cos x + 5\ln x - 5e^x + 2x^{-2}$