

## DERIVATIVE WORKSHEET

Find  $\frac{dy}{dx}$  for the following functions

1)  $y = 4x^7$

2)  $y = -3x^{12}$

3)  $y = 3x^8 + 2x + 1$

4)  $y = \frac{1}{2}(x^4 + 7)$

5)  $y = \sqrt[4]{x^5}$

6)  $y = \frac{x^2 - 1}{5}$

7)  $y = \sqrt{2}x + (1/\sqrt{2})$

8)  $y = x^{-3} + \frac{1}{x^7}$

Use the product or quotient rule to find the derivative of the following functions

9)  $y = (3x^2 + 6)(2x - 3)$

10)  $y = (2 - x - 3x^2)(7 + x^5)$

11)  $(3x^2 + 1)^2$

12)  $y = \frac{3x}{6x + 1}$

13)  $y = \frac{t^2 + 1}{3t}$

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

Find the derivative of the following functions (assume that a, b, c and d are constants not variables)

15)  $y = ax^3 + bx^2 + cx + d$

16)  $y = \frac{1}{a} \left( x^2 + \frac{1}{b}x + c \right)$