

## Differentiation - Logs and Exponentials

Differentiate each function with respect to  $x$ .

1)  $y = 4^{4x^4}$

2)  $y = 4^{-5x^3}$

3)  $y = \log_3 3x^2$

4)  $y = \log_2 4x^2$

5)  $y = \log_3 (3x^5 + 5)^5$

6)  $y = \log_5 (-5x^3 - 2)^3$

7)  $y = (4^{x^3} + 2)^3$

8)  $y = 3^{(x^4 + 1)^3}$

9)  $y = 3^{\cos 3x^4}$

10)  $y = \log_5 \tan 4x^4$