

Math 299

Derivative Worksheet

Name: _____
Due Date: ___March 17___

Do these problems by hand without the help of *Mathematica*.

Calculate the following derivatives:

- 1) The derivative with respect to x of e^{3x}
- 2) The derivative with respect to t of $\sqrt{\pi} e^{-t^2}$
- 3) The derivative with respect to x of $e^{\sin[x]}$
- 4) The derivative with respect to x of $\text{Sin}[7x]$
- 5) The derivative with respect to t of $\text{Sin}[\pi(t - a)]$
- 6) The derivative with respect to x of $\text{Log}[1 + 4x^2]$
- 7) The derivative with respect to x of $3 \text{Cos}[x^2]$
- 8) The derivative with respect to x of $\text{Log}[\text{Cos}[x]]$
- 9) The derivative with respect to t of $\text{Sin}[e^{2t}]$
- 10) The derivative with respect to x of $\text{Sin}[\text{Log}[x]]$

- 11) The derivative with respect to x of $\text{Sin}[b e^{a x}]$
- 12) The derivative with respect to y of $a e^{-b (y - x)^2}$
- 13) The derivative with respect to x of $3 x^5 - 4 x^2$
- 14) The derivative with respect to x of $\frac{8}{x}$
- 15) The derivative with respect to x of $e^{2 x} \text{Sin}[3 x]$
- 16) The derivative with respect to x of $(x^3 + 1)^8 (x^4 + 1)^7$
- 17) The derivative with respect to x of $\frac{\text{Cos}[\pi x]}{x^2}$
- 18) The derivative with respect to x of $x \text{Log}[x] - x$
- 19) The derivative with respect to x of \sqrt{x}