

DATE: \_\_\_\_\_

### Derivatives of Exponential Functions

1. Find  $y'$  for  $y = \cos x - 10e^x + 8x$

2. Find the second derivative of:

$$y = 3e^x$$

3. Find  $f'(x)$  if  $f(x) = \frac{x^2 e^x}{\cos x}$

4. Find  $y'$  for  $y = \frac{x^2 + 2x + e^x}{\sin x + 1}$

5. Find  $\frac{dy}{dt}$  for  $y = \frac{4e^t + t}{t^3 + 2t + 1}$

6. Find  $\frac{dy}{dx}$  for  $y = e^{x^2}$

7. Find  $f'(x)$  if  $f(x) = xe^{2x}$

8. Find  $y'$  for  $y = \sqrt[3]{e^x + 1}$

9. Find  $g'(x)$  for  $g(x) = \frac{e^x - e^{-x}}{2}$

10. Find  $\frac{dy}{dx}$  for  $e^x + e^y = x^3$