

Derivatives of Functions

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In each case, explain which *principles* you use:

1. Take the derivative with respect to x :
 $y(x) = 3$

2. Take the derivative with respect to x :
 $y(x) = 2x$

3. Take the derivative with respect to x :
 $y(x) = 3x^2$

4. Take the derivative with respect to x :
 $y(x) = 2x^9$

5. Take the derivative with respect to x :
 $y(x) = \frac{3}{x^3}$

6. Take the derivative with respect to x :
 $y(x) = y_0 e^{-\lambda x}$

7. Take the derivative with respect to x :
 $y(x) = e^{x^2}$

8. Take the derivative with respect to x :
 $y(x) = \ln x$