

Higher Order Derivatives

Differentiate each function through the requested order. Keep coefficients and powers exact, and use the stated real domain at every stage.

1. Find d^3y/dx^3 .

$y = \frac{-4}{3} \cdot x^4$

Domain: all real x.

2. Find d^4y/dx^4 .

$y = -\frac{5}{2} \cdot x^6 - \frac{9}{2}$

Domain: all real x.

3. Find d^3y/dx^3 .

$y = 4 \cdot x^6 + \frac{3}{2} \cdot x^3 + 6 \cdot x$

Domain: all real x.

4. Find d^4y/dx^4 .

$y = \frac{-9}{2} \cdot x^8$

Domain: all real x.

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Differentiate each function through the requested order. Keep coefficients and powers exact, and use the stated real domain at every stage.

5. Find d^3y/dx^3 .

$y = -\frac{7}{2} \cdot x^8 - \frac{9}{2} \cdot x^4$

Domain: all real x.

6. Find d^4y/dx^4 .

$y = \frac{7}{3} \cdot x^3 + 12 \cdot x^2 + 4 \cdot x$

Domain: all real x.

7. Find d^3y/dx^3 .

$y = -5 \cdot x^5$

Domain: all real x.

8. Find d^4y/dx^4 .

$y = -9 \cdot x^8 - \frac{7}{2} \cdot x$

Domain: all real x.

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Differentiate each function through the requested order. Keep coefficients and powers exact, and use the stated real domain at every stage.

9. Find d^3y/dx^3 .

$y = -\frac{5}{2} \cdot x^8 + 4 \cdot x^7 - \frac{8}{3} \cdot x^6$

Domain: all real x.

10. Find d^4y/dx^4 .

$y = 5 \cdot x^6$

Domain: all real x.