Calculus Name_____ ID: 1

# Derivatives of Higher Order

Date_____ Period____

**For each problem, find the indicated derivative with respect to *x*.**

1) $f(x) = -5x^4 + 5x^2 - x$ Find $f''$

2) $f(x) = -3x^5 - 4x^4 - 2x$ Find $f^{(4)}$

3) $f(x) = -4x^4 - 5x^2 - x$ Find $f'''$

4) $f(x) = 4x^5 - x^4 - 2x^2$ Find $f'''$

5) $f(x) = 5x^5 - x^4 + 5x^2$ Find $f''$

6) $f(x) = 2x^3 - 3x^2 - x$ Find $f''$

7) $f(x) = 2x^4 + x^3 + 4x$ Find $f''$

8) $f(x) = 5x^5 + 3x^2 - 4x$ Find $f''$

9) $f(x) = 3x^4 - 5x^2 - 2x$ Find $f^{(4)}$

10) $f(x) = -x^5 + 4x^2 - 2x$ Find $f''$

# Answers to Derivatives of Higher Order (ID: 1)

1) $f''(x) = -60x^2 + 10$
2) $f^{(4)}(x) = -360x - 96$
3) $f'''(x) = -96x$
4) $f'''(x) = 240x^2 - 24x$
5) $f''(x) = 100x^3 - 12x^2 + 10$
6) $f''(x) = 12x - 6$
7) $f''(x) = 24x^2 + 6x$
8) $f''(x) = 100x^3 + 6$
9) $f^{(4)}(x) = 72$
10) $f''(x) = -20x^3 + 8$