ICM Name_____

Higher Order (Shortcut), Trig Derivatives

Date_____ Period____

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

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

2) $y = 3x^3 + 3x^2 + 4x$ Find $\frac{d^4y}{dx^4}$

3) $f(x) = 4x^3$ Find f''

4) $f(x) = 3x^{-1} - \frac{1}{x^2}$ Find $f^{(4)}$

5) $y = x^2$ Find $\frac{d^3y}{dx^3}$

6) $f(x) = 4x^{\frac{1}{4}} + \frac{4}{x^4}$ Find $f^{(4)}$

Differentiate each function with respect to *x*.

7) $y = 3\cos x$

8) $f(x) = \cos x - \sin x$

9) $f(x) = -5\cot x$

10) $y = \sin x - \tan x$

11) $f(x) = \tan x - 7$

12) $y = \sec x + 3\csc x$