

## Derivatives Problem Set #3

**Differentiate each function with respect to  $x$ .**

1)  $f(x) = \sqrt[3]{2x^5 + 3}$

2)  $f(x) = \sqrt{-4x^4 + 3}$

3)  $f(x) = (-3x - 4)^3$

4)  $f(x) = \sqrt{x^3 + 5}$

5)  $f(x) = \sqrt[5]{-x^5 + 2}$

6)  $f(x) = \sqrt[4]{2x - 3}$

$$7) f(x) = (\sqrt[5]{5x+1} - 4)^2$$

$$8) f(x) = \sqrt[3]{(2x^3 - 5)^2 + 3}$$

$$9) f(x) = \sqrt{\sqrt[4]{3x+5} - 1}$$

$$10) f(x) = (\sqrt[5]{3x^3 + 5} + 4)^4$$

$$11) f(x) = \sqrt[5]{(3x^3 + 2)^2 - 3}$$

$$12) f(x) = (\sqrt[5]{x^2 + 3} - 3)^2$$