Math 2413 – Calculus I **Homework** Section 2.2 & 2.3 **Name**:

Find the Derivative:

1. $f(x) = 3x - 4$

2. $f(x) = 2x^3 - 3x^2 - 5$

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

4. $f(x) = x^2 + 3x - x^{-1} - 1 + x^{-1/2}$

5. $f(t) = 4\sqrt{t} - \frac{1}{4}t^4 + t + 1 + \frac{1}{t}$

6. $f(x) = x^{0.35} + x^{-\pi^2} + x^{\sqrt{7}}$

7. $f(x) = 2x^{5/4} + 4x^{-2} - 6x$

8. $f(t) = 7t^{-5/14} + 2t^{-6} + 6$

9. $f(x) = \sqrt[4]{x} + \sqrt[3]{x} + \sqrt{2}\ x^{\sqrt{2}}$

10. $f(x) = 6\sqrt{x} - \frac{1}{\sqrt{x}}$

11. $f(x) = \frac{1-2x}{x^{1/2}}$

12. $f(y) = 16y^{0.2} + 8y^{-0.8}$

13. $f(x) = (1-2x)(3x+5)$

14. $f(x) = \left(5x^3 + 3x + 1\right)\left(x^2 + 5\right)$

15. $f(x) = \left(x^2 - 2\right)^2$

16. $f(x) = \sqrt{x}\left(\sqrt{x} - 1\right)$

17. $f(y) = \frac{y^2 - 1}{y - 1}$

18. $f(x) = \frac{x^3 - 6x^2 + 8x}{x^2 - 2x}$

19. $f(x) = \frac{x-a}{\sqrt{x} - \sqrt{a}}; \quad a > 0$

20. $y = \frac{x}{x+1}$

21. $g(t) = 3t^2 + \frac{6}{t^7}$

22. $g(x) = \frac{(x-1)\left(2x^2 - 1\right)}{x^3 - 1}$

23. $f(x) = \left(2 + x^{-1}\right)\left(x^{3/2} + 1\right)$

24. $f(x) = \frac{x+4}{x^2 + x + 1}$

25. $f(x) = \left(\frac{x^2 - 4}{x - 1}\right)\left(\frac{x^2 - 1}{x + 2}\right)$