Math 116
Homework 03

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3.1

5. Solve for z: $\dfrac{4}{3}z - 1 = \dfrac{1}{10}$

12. Solve for x: $2z^2x - z^3 = 1$

3.2

Find the solutions, both real and complex, for the following equations:

3. $x^2 + 6x + 9 = 0$

7. $y^2 - 2y + 2 = 0$

3.3

Find the solutions, both real and complex, for the following equation. Check your answer(s).

17. $\sqrt{x} - 3 = 5 - \sqrt{x}$

22. Find all real solutions to $x^{2/5} - 3x^{1/5} + 2 = 0$.

4.2

6. Find the equation of the line of slope $\dfrac{2}{3}$ through the point $(2, 7)$.
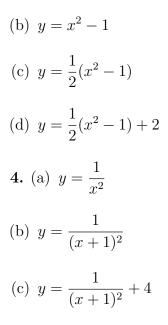
15. Find the equation of the line through the point $\left(0, \dfrac{4}{3}\right)$ parallel to the line $y = 5x - 10$. Graph both lines.

17. Find the equation of the line through the point $\left(\dfrac{1}{2}, -3\right)$ perpendicular to the line $y = -\dfrac{1}{7}x - 5$. Graph both lines.

4.6

Graph the following functions.

1. (a) $y = x^2$

(b) $y = x^2 - 1$

(c) $y = \dfrac{1}{2}(x^2 - 1)$

(d) $y = \dfrac{1}{2}(x^2 - 1) + 2$

4. (a) $y = \dfrac{1}{x^2}$

(b) $y = \dfrac{1}{(x+1)^2}$

(c) $y = \dfrac{1}{(x+1)^2} + 4$

4.7

1. Find the simultaneous solutions to the following systems of equations:

(a) $\begin{cases} 3x - 2y = 16 \\ 5x + y = 5 \end{cases}$

(b) $\begin{cases} x^2 - 4y = 6 \\ 2x + 2y = 3 \end{cases}$

3. Find the points of intersection for the line $y = x$ and the circle $x^2 + y^2 = 1$ (*Hint*: Graph the functions).