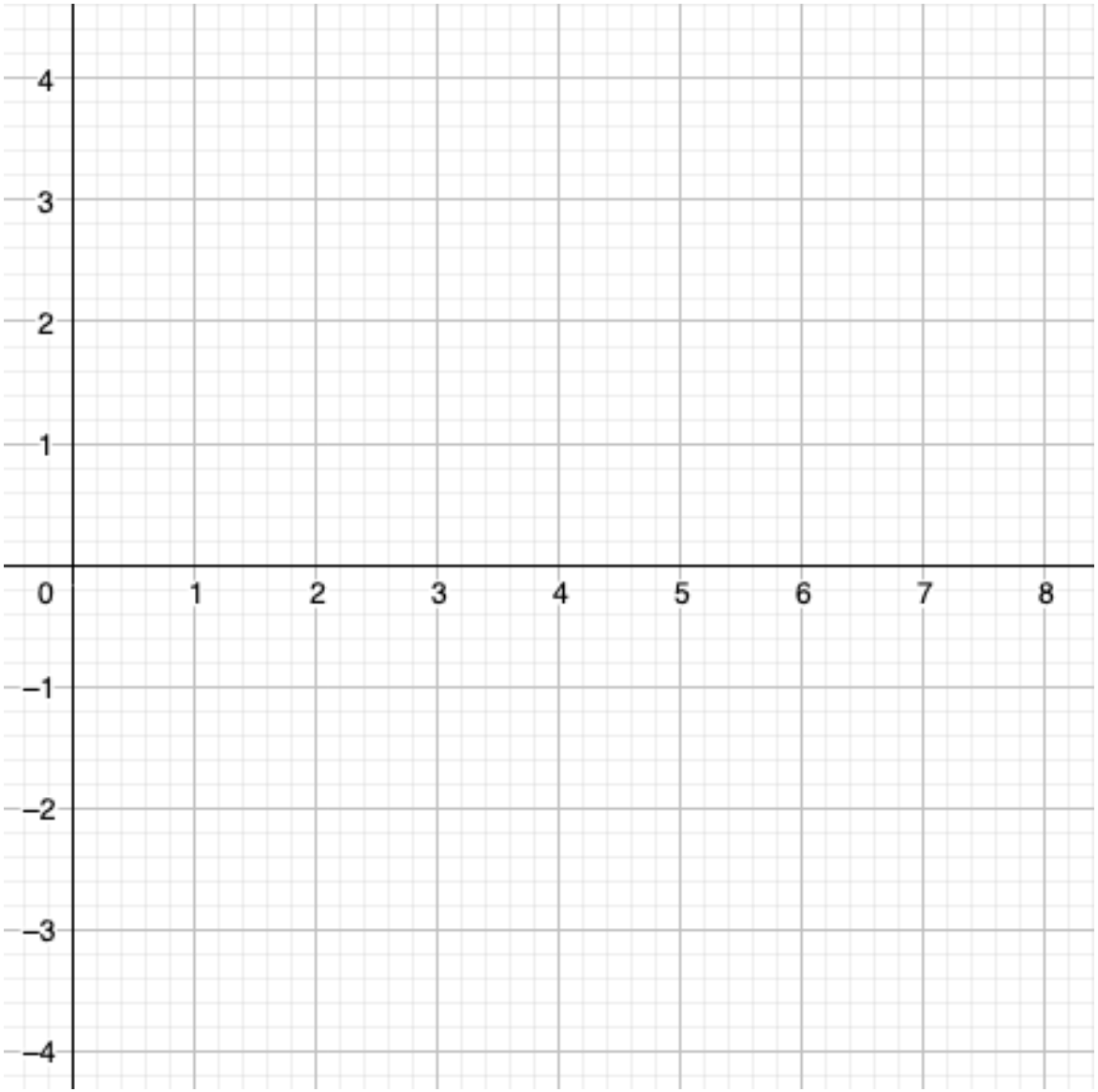
Chapter 3
Quadratic Equations and Complex Numbers

1. **Solving Quadratic Equations**
2. Complex Numbers
3. Completing the Square
4. Using the Quadratic Formula
5. Solving Nonlinear Systems
6. Quadratic Inequalities

3.1 - Solving Quadratic Equations

Solve by graphing

$$x^2 - 8x + 12 = 0$$



3.1 - Solving Quadratic Equations

Solve algebraically

a. $2x^2 + 14 = 70$

$x = \pm 2\sqrt{7}$

b. $\frac{2}{3}x^2 + 14 = 20$

$x = \pm 3$

3.1 - Solving Quadratic Equations

Solve by factoring

a. $x^2 + 2x = 48$

$x = \{6, -8\}$

b. $3x^2 - 5x = 2$

$x = \left\{2, -\frac{1}{3}\right\}$

3.1 - Solving Quadratic Equations

Solve by factoring

19. $x^2 + x - 6 = 0$

20. $x^2 + 3x - 10 = 0$

22. $x^2 - 4x + 4 = 0$

23. $x^2 + 7x + 12 = 0$

25. $x^2 - 36 = 0$

26. $x^2 - 2x - 15 = 0$

3.1 - Solving Quadratic Equations

Solve by factoring

$$x^4 - 5x^2 + 4 = 0$$

$$x = \{\pm 1, \pm 2\}$$