Assignment 3A

Solve using the square root method

1. $3(x+3)^2 - 5 = 31$

$$x = -2\sqrt{3} - 3 \text{ or } x = 2\sqrt{3} - 3$$

2. $2x^2 + 9 = 5$

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

3. $(x-4)^2 = -9$

$$x = \pm 3i + 4$$

Solve by Factoring

1. $x^2 + 15x - 34 = 0$

$$x = -17 \text{ or } x = 2$$

2. $x^2 - 12x = -35$

$$x = 5 \text{ or } x = 7$$

3. $4x^2 + 12x + 9 = 0$

$$x = -\frac{3}{2}$$

4. $2x^2 + 5x + 3 = 0$

$$x = -\frac{3}{2} \text{ or } x = -1$$

5. Try this: Factor the left side *before* setting equal to 0.
   $9x^2 - 24x + 16 = -5$

$$\frac{4 \pm \sqrt{5}i}{3}$$

Solve by completing the square

6. $2x^2 + 8x - 5 = 7$

$$x = -\sqrt{10} - 2 \; or \; x = \sqrt{10} - 2$$

7. $x^2 + 6x = -25$

$$x = 3 \pm 4i$$

8. $4x^2 + 8x + 20 = 0$

$$x = 1 \pm 2i$$

Solve using the quadratic formula

9. $4x^2 - 3x - 5 = 2$

$$x = -1 \; or \; x = \frac{7}{4}$$

10. $5x^2 - 4x = 5$

$$x = \frac{2 - \sqrt{29}}{5} \; or \; x = \frac{\sqrt{29} + 2}{5}$$

11. $3x^2 + x + 1 = 0$

$$x = -\frac{1}{6} \pm \frac{\sqrt{11}}{6} i$$

12. $-5x^2 + 6x + 3 = 5$

$$x = \frac{3}{5} \pm \frac{1}{5} i$$