Sec 1.5 Quadratics
-Solving via square roots-

$3x^2 - 15 = 0$

$3x^2 = 15$

$x^2 = 5$

$x = \pm\sqrt{5}$

$\{-\sqrt{5}, \sqrt{5}\}$

double the root

$9x^2+25=0$

$9x^2=-25$

$\sqrt{x^2}=\sqrt{\frac{-25}{9}}$

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

$2(x-2)^2=12$

$(x-2)^2=6$

$x-2=\pm\sqrt{6}$

$x=2\pm\sqrt{6}$

$\{2-\sqrt{6}, 2+\sqrt{6}\}$

double when you take the square root

$$\frac{3(x+4)^2}{3} = \frac{12}{3}$$

$$\sqrt{(x+4)^2} = \pm\sqrt{4}$$

$$x + 4 = \pm 2$$
$$-4 \quad -4$$

$$x = \{-6, -2\}$$

$5x^2 = -45$

$\sqrt{x^2} = \sqrt{-9}$

$x = \pm 3i$

$\{-3i, 3i\}$

$3x^2 - 21 = 0$

$x^2 = 7$

$x = \pm\sqrt{7}$

$(x+5)^2 = -16$

$x+5 = \pm 4i$

$= -5 \pm 4i$

$\{-5-4i, -5+4i\}$

*use a +bi form

$(x+4)^2 = 25$

$x+4 = \pm 5$

$-4 \quad -4$

$x = 1 \text{ & } -9$

$$(8x+3)^2 = 5$$

$$8x + 3 = \pm\sqrt{5}$$

$$\frac{8x}{8} = \frac{-3 \pm \sqrt{5}}{8}$$

$$\boxed{x = \frac{-3 \pm \sqrt{5}}{8}}$$

$$x = \left\{ \frac{-3}{8} - \frac{\sqrt{5}}{8}, \frac{-3}{8} + \frac{\sqrt{5}}{8} \right\}$$

Sec 1.5
Suggested Practice
page 160, 15-33 odds

15. ± 3

17. $\pm\sqrt{10}$

19. $\pm 5i$

21. $\{-7, 3\}$

23. $4 \pm \sqrt{5}$

25. $-3 \pm 4i$

27. $3 \pm i\sqrt{5}$

29. $\left\{-\frac{5}{3}, \frac{1}{3}\right\}$

31. $\frac{1 \pm \sqrt{7}}{5}$

33. $\frac{4 \pm 2\sqrt{2}}{3}$