

Alg 2: Homework 35

p. 192: 4, 5, 18, 21, 24

$$(4) \quad x^2 - 8x + 16$$

$$(5) \quad x^2 - 2x + 1$$

$$(18) \quad x^2 + 2x - 5 = 0$$

$$x^2 + 2x \boxed{+ 1} = 5 \boxed{+ 1}$$

$$(x + 1)^2 = 6$$

$$\sqrt{(x + 1)^2} = \pm \sqrt{6}$$

$$x + 1 = \pm \sqrt{6}$$

$$x = \boxed{-1 \pm \sqrt{6}}$$

$$(21) \quad \frac{2x^2}{2} + \frac{12x}{2} + \frac{3}{2} = \frac{0}{2}$$

$$x^2 + 6x + \frac{3}{2} = 0$$

$$x^2 + 6x \boxed{+ 9} = -\frac{3}{2} \boxed{+ 9}$$

$$(x + 3)^2 = -\frac{3}{2} + \frac{18}{2}$$

$$\sqrt{(x + 3)^2} = \pm \sqrt{\frac{15}{2}}$$

$$x + 3 = \pm \frac{\sqrt{15}}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$$

$$x + 3 = \pm \frac{\sqrt{30}}{2}$$

$$x = \boxed{-3 \pm \frac{\sqrt{30}}{2}}$$

$$(24) \quad \frac{4x^2}{4} - \frac{20x}{4} + \frac{9}{4} = 0$$

$$x^2 - 5x + \frac{9}{4} = 0$$

$$x^2 - 5x + \frac{25}{4} = -\frac{9}{4} + \frac{25}{4}$$

$$\left(x - \frac{5}{2}\right)^2 = \frac{16}{4}$$

$$\sqrt{\left(x - \frac{5}{2}\right)^2} = \pm\sqrt{4}$$

$$x - \frac{5}{2} = \pm 2$$

$$x = \frac{5}{2} \pm 2$$

$$x = \frac{5}{2} \pm \frac{4}{2}$$

$$x = \frac{5}{2} + \frac{4}{2} \quad \vee \quad x = \frac{5}{2} - \frac{4}{2}$$

$$x = \frac{9}{2} \quad \vee \quad x = \frac{1}{2}$$

$$\left\{\frac{9}{2}, \frac{1}{2}\right\}$$

p. 93: 6, 14

$$(6) \quad \sqrt{8b^3} = \sqrt{4} \sqrt{2} \sqrt{b^2} \sqrt{b} = \boxed{2b\sqrt{2b}}$$

$$(14) \quad \sqrt[3]{40a^4} = \sqrt[3]{8} \sqrt[3]{5} \sqrt[3]{a^3} \sqrt[3]{a} = \boxed{2a\sqrt[3]{5a}}$$

p. 113: 21

$$(21) \quad (x+3)^2 = (\sqrt{1-3x})^2$$

$$x^2 + 6x + 9 = 1 - 3x$$

$$x^2 + 9x + 8 = 0$$

$$(x+8)(x+1) = 0$$

$$x+8=0 \quad \vee \quad x+1=0$$

$$x=-8 \quad \vee \quad x=-1$$

Check (x = -8)

$$-8+3 \stackrel{?}{=} \sqrt{1-3(-8)}$$

$$-5 \stackrel{?}{=} \sqrt{1+24}$$

$$-5 \stackrel{?}{=} \sqrt{25}$$

$$-5 \neq 5$$

reject x = -8

Check (x = -1)

$$-1+3 \stackrel{?}{=} \sqrt{1-3(-1)}$$

$$2 \stackrel{?}{=} \sqrt{1+3}$$

$$2 \stackrel{?}{=} \sqrt{4}$$

$$2 = 2$$

$$\{-1\}$$