7.6 p462

① $x(x+7)=0$

$x=0$ or $x+7=0$

$x=0$ or $x=-7$

$\{-7,0\}$

③ $(x-6)(x+4)=0$

$x-6=0$ $x+4=0$

$x=6$ or $x=-4$

$\{-4,6\}$

⑤ $(x-9)(5x+4)=0$

$x-9=0$ or $5x+4=0$

$x=9$ or $5x=-4$

$x=\frac{-4}{5}$

$\{\frac{-4}{5},9\}$

⑦ $10(x-4)(2x+9)=0$

$(x-4)=0$ or $2x+9=0$

$x=4$ or $x=\frac{-9}{2}$

$\{-\frac{9}{2},4\}$

⑨ $x^2+8x+15=0$

$(x+3)(x+5)=0$

$x+3=0$ or $x+5=0$

$x=-3$ or $x=-5$

$\{-5,-3\}$

⑪ $x^2-2x-15=0$

$(x-5)(x+3)=0$

$x-5=0$ or $x+3=0$

$x=5$ or $x=-3$

$\{-3,5\}$

⑬ $x^2-4x=21$

$x^2-4x-21=0$

$(x-7)(x+3)=0$

$x-7=0$ or $x+3=0$

$x=7$ or $x=-3$

$\{-3,7\}$

⑮ $x^2+9x=-8$

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

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

$x+1=0$ or $x+8=0$

$x=-1$ or $x=-8$

$\{-8,-1\}$

7.6 p 462

(17) $x^2+4x=0$

$x(x+4)=0$

$x=0$ or $x+4=0$

$x=0$ or $x=-4$

$\{-4,0\}$

(19) $x^2-5x=0$

$x(x-5)=0$

$x=0$ or $x-5=0$

$x=0$ or $x=5$

$\{0,5\}$

(21) $x^2=4x$

$x^2-4x=0$

$x(x-4)=0$

$x=0$ or $x-4=0$

$x=0$ or $x=4$

$\{0,4\}$

(23) $2x^2=5x$

$2x^2-5x=0$

$x(2x-5)=0$

$x=0$ or $2x-5=0$

$x=0$ or $2x=5$

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

$\{0,\frac{5}{2}\}$

(25) $3x^2=-5x$

$3x^2+5x=0$

$x(3x+5)=0$

$x=0$ or $3x+5=0$

$x=0$ or $3x=-5$

or $x=\frac{-5}{3}$

$\{\frac{-5}{3},0\}$

(27) $x^2+4x+4=0$

$(x+2)^2=0$

$x+2=0$

$x=-2$

$\{-2\}$

(29) $x^2=12x-36$

$x^2-12x+36=0$

$x(x-6)^2=0$

$x-6=0$

$x=6$

$\{6\}$

(31) $4x^2=12x-9$ 2.2 3.3

$4x^2-12x+9=0$ perfect square trinomial

$(2x-3)^2=0$

$2x-3=0$

$2x=3$

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

$\{\frac{3}{2}\}$

(33) $2x^2=7x+4$

$2x^2-7x-4=0$

$(2x+1)(x-4)=0$

$2x+1=0$ or $x-4=0$

$2x=-1$ or $x=4$

$x=-\frac{1}{2}$ or $x=4$

$\{-\frac{1}{2},4\}$

(35) $5x^2=18-x$

$5x^2+x-18=0$

$(5x-9)(x+2)=0$

$5x-9=0$ or $x+2=0$

$5x=9$ or $x=-2$

$x=\frac{9}{5}$ or $x=-2$

$\{-2,\frac{9}{5}\}$

7.6 p463

(37) $x^2 - 49 = 0$

$(x-7)(x+7) = 0$

$x-7=0$ or $x+7=0$

$x = 7$ or $x = -7$

$\{-7, 7\}$

(39) $4x^2 - 25 = 0$

$(2x-5)(2x+5) = 0$

$2x-5=0$ or $2x+5=0$

$2x = 5$ or $2x = -5$

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

$\{-\frac{5}{2}, \frac{5}{2}\}$

(41) $81x^2 = 25$

$81x^2 - 25 = 0$

$(9x-5)(9x+5) = 0$

$9x-5=0$ or $9x+5=0$

$9x = 5$ $\quad 9x = -5$

$x = \frac{5}{9}$ $\quad x = \frac{-5}{9}$

$\{-\frac{5}{9}, \frac{5}{9}\}$

(43) $x(x-4) = 21$

$x^2 - 4x = 21$

$x^2 - 4x - 21 = 0$

$(x-7)(x+3) = 0$

$x-7=0$ or $x+3=0$

$x = 7$ or $x = -3$

$\{-3, 7\}$

(45) $4x(x+1) = 15$

$4x^2 + 4x - 15 = 0$

$(2x-3)(2x+5) = 0$

$2x-3=0$ or $2x+5=0$

$2x = 3$ $\quad 2x = -5$

$x = \frac{3}{2}$ or $x = -\frac{5}{2}$

$\{-\frac{5}{2}, \frac{3}{2}\}$

(47) $(x-1)(x+4) = 14$

$x^2 + 4x - x - 4 = 14$

$x^2 + 3x - 4 - 14 = 0$

$x^2 + 3x - 18 = 0$

$(x-3)(x+6) = 0$

$x-3=0$ or $x+6=0$

$x = 3$ or $x = -6$

$\{-6, 3\}$

(49) $(x+1)(2x+5) = -1$

$2x^2 + 5x + 2x + 5 = -1$

$2x^2 + 7x + 5 + 1 = 0$

$2x^2 + 7x + 6 = 0$

$(2x+3)(x+2) = 0$

$2x+3=0$ $\quad x+2=0$

$2x = -3$ or $x = -2$

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

$\{-2, -\frac{3}{2}\}$

(51) $y(y+8) = 16(y-1)$

$y^2 + 8y = 16y - 16$

$-16y+16 \quad -16y+16$

$y^2 - 8y + 16 = 0$

$(y-4)^2 = 0$ $\quad \{4\}$

$y - 4 = 0$

$y = 4$

7.6 p465

(53) $4y^2 + 20y + 25 = 0$

$(2y+5)^2 = 0$

$2y+5=0$

$2y=-5$

$y=\frac{-5}{2}$

$\left\{\frac{-5}{2}\right\}$

(55) $64w^2 = 48w - 9$ 8.8 3.3

$64w^2 - 48w + 9 = 0$

$(8w-3)^2 = 0$

$8w-3=0$

$8w=3$

$w=\frac{3}{8}$

$\left\{\frac{3}{8}\right\}$

(57) $(x-4)(x^2+5x+6) = 0$

$(x-4)(x+2)(x+3) = 0$

$x-4=0$ or $x+2=0$ $x+3=0$

$x=4$ or $x=-2$ or $x=-3$

$\{-3,-2,4\}$

(59) $x^3 - 36x = 0$

$x(x^2-36) = 0$

$x(x-6)(x+6) = 0$

$x=0$ or $x-6=0$ or $x+6=0$

$x=0$ or $x=6$ or $x=-6$

$\{-6,0,6\}$

(61) $y^3 + 3y^2 + 2y = 0$

$y(y^2+3y+2) = 0$

$y(y+1)(y+2) = 0$

$y=0$ or $y+1=0$ or $y+2=0$

$y=0$ or $y=-1$ or $y=-2$

$\{-2,-1,0\}$

(63) $2(x-4)^2 + x^2 = x(x+50) - 46x$

$2(x^2-8x+16) + x^2 = x^2+50x-46x$

$2x^2-16x+32+x^2 = x^2+4x$

$3x^2-16x+32 = x^2+4x$

$-x^2-4x \qquad -x^2-4x$

$2x^2-20x+32=0$

$2(x^2-10x+16)=0$

$2(x-8)(x-2)=0$

$x-8=0$ or $x-2=0$

$x=8$ or $x=2$

$\{2,8\}$

7.6 p463

(65) $(x-2)^2 - 5(x-2) + 6 = 0$

$= [(x-2) - 3][(x-2) - 2] = 0$

$= (x-5)(x-4) = 0$

$x-5=0$ or $x-4=0$

$x = 5$ or $x = 4$

$\{4, 5\}$