13. $8x^2 - 10x + 3 = 0$

$(2x - 1)(4x - 3) = 0$

4x, 2x
8x, 1x
2x, 4x
1x, 8x

$-4x$
$-6x$
$-10x$

$2x - 1 = 0$ or $4x - 3 = 0$

$+1 \quad +1$ $\quad$ $+3 \quad +3$

$\frac{2x}{2} = \frac{1}{2}$ $\quad$ $\frac{4x}{4} = \frac{3}{4}$

$x = \frac{1}{2}$ or $x = \frac{3}{4}$

37. $\sqrt{(x+4)^2} = \sqrt{169}$

$x + 4 = \pm 13$

$-4 \quad -4$

-4 ± 13

$x = 9, -17$

21. $(3w+2)(3w-2) = -w^2 + 26w - 16$

$9w^2 - 6w + 6w - 4 = -w^2 + 26w - 16$

$9w^2 - 4 = -w^2 + 26w - 16$

$+w^2 - 26w + 16 \quad +w^2 - 26w + 16$

$\frac{10w^2}{2} - \frac{26w}{2} + \frac{12}{2} = \frac{0}{2}$

$5w^2 - 13w + 6 = 0$

~~2, 3~~
6, 1
1, 6
3, 2

$(5w - 3)(w - 2) = 0$

$-5w$
$-10w$
$-13w$

$5w - 3 = 0$ $\quad$ $w - 2 = 0$

$+5 \quad +3$ $\quad$ $+2 \quad +2$

$\frac{5w}{5} = \frac{3}{5}$ $\quad$ $w = 2$

$w = \frac{3}{5}$ or

7. $\sqrt{\left(x + \frac{7}{3}\right)^2} = \sqrt{\frac{38}{9}}$

$\sqrt{38}$ $\sqrt{9}$ $\sqrt{-1}$ i

$x + \frac{7}{3} = \pm \frac{\sqrt{38}}{3}i$

$-\frac{7}{3} \quad -\frac{7}{3}$

$\therefore x = \frac{-7}{3} + \frac{\sqrt{38}}{3}i$

0- 4+
5- 7✓
8↑-

6.2 Completing the square

solving $ax^2+bx+c=0$,
and it <u>always</u> gives us a solution opposed to factoring

To complete the square:

1. need to get rid of a (x^2 alone)
2. move the constant "c" to the other side
3. divide the b by 2, then square it.
4. Add this number to both sides
5. factor & solve

Ex: $x^2 - 8x + 7 = 0$

$-7 \quad -7$

$x^2 - 8x + 16 = -7 + 16$

$-8 \div 2 = (-4)^2 = 16$

$x^2 - 8x + 16 = 9$

$\sqrt{(x-4)^2} = \sqrt{9}$

$x - 4 = \pm 3$

$+4 \quad +4$

$x = 7, 1$

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

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

$$+\frac{9}{4} \quad +\frac{9}{4}$$

$$x^2 + x + \frac{1}{4} = \frac{9}{4} + \frac{1}{4}$$

$$1 \div 2 \left(\frac{1}{2}\right)^2 = \frac{1}{4}$$

$$x^2 + x + \frac{1}{4} = \frac{10}{4}$$

$$\sqrt{\left(x + \frac{1}{2}\right)^2} = \sqrt{\frac{10}{4}}$$

$$x + \frac{1}{2} = \pm\frac{\sqrt{10}}{2}$$

$$-\frac{1}{2} \quad -\frac{1}{2}$$

$$x = -\frac{1}{2} \pm \frac{\sqrt{10}}{2}$$

$$x = \frac{-1 \pm \sqrt{10}}{2}$$

Hw: p. 381

28-62 even