10.2.5 #74-87 (skip 77-80)

10-74 $ax^2 + bx + c = 0$
$\quad\quad\quad\quad\quad\quad -c \quad -c$

1. $\frac{ax^2}{a} + \frac{bx}{a} = -\frac{c}{a}$

$(\frac{b}{2})^2$

$x^2 + bx + __ = __$

2. $x^2 + \frac{bx}{a} + \square = -\frac{c}{a} + \square$ → $\frac{b}{2a}x$ | $\frac{b^2}{4a^2}$; x^2 | $\frac{b}{2a}x$

$\frac{1}{2} \cdot \frac{b}{a}x$

$(\frac{b}{2a})^2$

3. $x^2 + \frac{bx}{a} + \frac{b^2}{4a^2} = -\frac{c}{a} + \frac{b^2}{4a^2}$

4. $\left(x + \frac{b}{2a}\right)^2 = \frac{b^2}{4a^2} - \frac{c}{a}$ → $-\frac{c}{a}\left(\frac{4a}{4a}\right) = \frac{-4ac}{4a^2}$

5. $\sqrt{\left(x + \frac{b}{2a}\right)^2} = \sqrt{\frac{b^2 - 4ac}{4a^2}}$

6. $x + \frac{b}{2a} = \frac{\sqrt{b^2 - 4ac}}{2a}$
$\quad -\frac{b}{2a} \quad -\frac{b}{2a}$

7. $x = \frac{-b}{2a} \pm \frac{\sqrt{b^2 - 4ac}}{2a}$

8. $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

10-75 Discriminant