The method: The quadratic formula

x = (−b ± √(b² − 4ac)) ÷ 2a. Simplify the radical and reduce.

$2x^2 - 6x - 1 = 0 \quad x = \frac{3 \pm \sqrt{11}}{2}$

$a = 2,\ b = -6,\ c = -1$

$(-6)^2 - 4(2)(-1) = 44$ the discriminant $b^2 - 4ac$

$x = \frac{6 \pm \sqrt{44}}{4}$ $x = (-b \pm \sqrt{(b^2 - 4ac)}) \div 2a$

$x = \frac{6 \pm 2\sqrt{11}}{4}$ $\sqrt{44} = 2\sqrt{11}$

$x = \frac{3 \pm \sqrt{11}}{2}$ simplify

$x^2 + 8x - 9 = 0 \quad x = 1 \text{ or } x = -9$

$a = 1,\ b = 8,\ c = -9$

$8^2 - 4(1)(-9) = 100$ the discriminant $b^2 - 4ac$

$x = \frac{-8 \pm \sqrt{100}}{2}$ $x = (-b \pm \sqrt{(b^2 - 4ac)}) \div 2a$

$x = 1 \text{ or } x = -9$ simplify

Problems 1 and 2 worked out · Version 0A

$x^2 - x - 4 = 0 \quad x = \frac{1 \pm \sqrt{17}}{2}$

$a = 1,\ b = -1,\ c = -4$

$(-1)^2 - 4(1)(-4) = 17$ the discriminant $b^2 - 4ac$

$x = \frac{1 \pm \sqrt{17}}{2}$ $x = (-b \pm \sqrt{(b^2 - 4ac)}) \div 2a$

$x = \frac{1 \pm \sqrt{17}}{2}$ simplify

$x^2 + 7x - 7 = 0 \quad x = \frac{-7 \pm \sqrt{77}}{2}$

$a = 1,\ b = 7,\ c = -7$

$7^2 - 4(1)(-7) = 77$ the discriminant $b^2 - 4ac$

$x = \frac{-7 \pm \sqrt{77}}{2}$ $x = (-b \pm \sqrt{(b^2 - 4ac)}) \div 2a$

$x = \frac{-7 \pm \sqrt{77}}{2}$ simplify

The quadratic formula · Version 0A

1) $x = \frac{1 \pm \sqrt{17}}{2}$ 2) $x = \frac{-7 \pm \sqrt{77}}{2}$ 3) $x = \frac{1}{4}$ or $x = -2$

4) $x = \frac{1}{2}$ or $x = -\frac{5}{2}$ 5) $x = \frac{-5 \pm \sqrt{13}}{6}$ 6) $x = \frac{5 \pm \sqrt{21}}{2}$

7) $x = 1 \pm 2\sqrt{2}$ 8) $x = \frac{9 \pm \sqrt{93}}{6}$