

Consumer Math

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

Name Key

Quadratic Formula Review - Notes

Date _____

Solve each equation with the quadratic formula.

1) $4b^2 + 7b - 57 = 0$

$a: 4 \quad b: 7 \quad c: -57$

$$x = \frac{-7 \pm \sqrt{7^2 - (4 \cdot 4 \cdot -57)}}{2 \cdot 4}$$

$$= \frac{-7 \pm \sqrt{49 - (-912)}}{8}$$

$$= \frac{-7 \pm \sqrt{961}}{8}$$

$$= \frac{-7 \pm 31}{8}$$

① $\frac{-7+31}{8}$

$$= \frac{24}{8} = \boxed{3}$$

② $\frac{-7-31}{8}$

$$= \frac{-38}{8} = \boxed{-4.75}$$

3) $3p^2 - 8p - 3 = 0$

$a: 3 \quad b: -8 \quad c: -3$

$$x = \frac{-(-8) \pm \sqrt{(-8)^2 - (4 \cdot 3 \cdot -3)}}{2 \cdot 3}$$

$$= \frac{8 \pm \sqrt{64 - (-36)}}{6}$$

$$= \frac{8 \pm \sqrt{100}}{6}$$

$$= \frac{8 \pm 10}{6}$$

① $\frac{8+10}{6} = \frac{18}{6} = \boxed{3}$

② $\frac{8-10}{6} = \frac{-2}{6} = \boxed{-\frac{1}{3}}$

2) $n^2 - 5n - 50 = 0$

$a: 1 \quad b: -5 \quad c: -50$

$$x = \frac{-(-5) \pm \sqrt{(-5)^2 - (4 \cdot 1 \cdot -50)}}{2 \cdot 1}$$

$$= \frac{5 \pm \sqrt{25 - (-200)}}{2}$$

$$= \frac{5 \pm \sqrt{225}}{2}$$

$$= \frac{5 \pm 15}{2}$$

① $\frac{5+15}{2}$

$$= \frac{20}{2} = \boxed{10}$$

② $\frac{5-15}{2}$

$$= \frac{-10}{2} = \boxed{-5}$$

$$4) 4p^2 - 9p - 35 = 10 - 12p$$

$$4p^2 + 3p - 45 = 0$$

$$a: 4 \quad b: 3 \quad c: -45$$

$$= \frac{-3 \pm \sqrt{3^2 - (4 \cdot 4 \cdot -45)}}{2 \cdot 4}$$

$$x = \frac{-3 \pm \sqrt{9 - (-720)}}{8}$$

$$x = \frac{-3 \pm \sqrt{729}}{8}$$

$$x = \frac{-3 \pm 27}{8}$$

$$① \frac{-3+27}{8}$$

$$= \frac{24}{8} = \boxed{3}$$

$$② \frac{-3-27}{8}$$

$$= \frac{-30}{8} = \boxed{-3.75}$$

$$5) 2v^2 - 102 = -6 + 4v$$

$$2v^2 - 4v - 96 = 0$$

$$a: 2 \quad b: -4 \quad c: -96$$

$$x = \frac{-(-4) \pm \sqrt{(-4)^2 - (4 \cdot 2 \cdot -96)}}{2 \cdot 2}$$

$$x = \frac{4 \pm \sqrt{16 - (-768)}}{4}$$

$$x = \frac{4 \pm \sqrt{784}}{4}$$

$$x = \frac{4 \pm 28}{4}$$

$$① \quad x = \frac{4+28}{4}$$

$$= \frac{32}{4}$$

$$= \boxed{8}$$

$$② \quad x = \frac{4-28}{4}$$

$$= \frac{-24}{4}$$

$$= \boxed{-6}$$

$$6) 3k^2 - k - 144 = 11k - 9$$

$$3k^2 - 12k - 135 = 0$$

$$a: 3 \quad b: -12 \quad c: -135$$

$$x = \frac{-(-12) \pm \sqrt{(-12)^2 - (4 \cdot 3 \cdot -135)}}{2 \cdot 3}$$

$$x = \frac{12 \pm \sqrt{144 - (-1620)}}{6}$$

$$① \quad x = \frac{12+42}{6} = \frac{54}{6} = \boxed{9}$$

$$x = \frac{12 \pm \sqrt{1764}}{6}$$

$$② \quad x = \frac{12-42}{6} = \frac{-30}{6} = \boxed{-5}$$

$$x = \frac{12 \pm 42}{6}$$