

## Today's Plan:

**Learning Target (standard):** I will solve quadratic equations by factoring, square root property, completing the square and the quadratic formula.

**Students will:** Complete practice problems over previous concepts at the boards, put up homework problems on the board and make necessary corrections to their own work, take notes over new material and complete practice problems over new concepts.

**Teacher will:** Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of new concepts and assign students assessment problems over new concepts.

**Assessment:** Board work, homework check and homework assignment

**Differentiation:** Students will work at the board, go over and correct homework at their seats, actively engage in lecture over new concepts, practice new concepts with the aid of other students and the teacher and complete homework assignment.

## Solving Quadratics

$$1) a = \frac{8}{5}, 8$$

$$2) a = -3, \frac{3}{7}$$

$$3) n = \frac{\sqrt{21}}{3}i, -\frac{\sqrt{21}}{3}i$$

$$4) m = -1, 1$$

$$5) x = -1, 7$$

$$6) n = 6 + \sqrt{3}i, 6 - \sqrt{3}i$$

$$7) n = \frac{-5 + 2\sqrt{21}}{2}, \frac{-5 - 2\sqrt{21}}{2}$$

$$8) n = -\frac{17}{8} + \frac{9\sqrt{15}}{8}i, -\frac{17}{8} - \frac{9\sqrt{15}}{8}i$$

$$9) p = \frac{2\sqrt{5}}{5}i, -\frac{2\sqrt{5}}{5}i$$

$$10) x = -\sqrt{22}, \sqrt{22}$$

$$11) n = -2, 2$$

$$12) k = \frac{1 + \sqrt{7}}{6}, \frac{1 - \sqrt{7}}{6}$$

Solve by Factoring:

$$(3x - 4)(x + 4) = x^2 - 3x - 28$$

$$3x^2 + 8x - 16 = x^2 - 3x - 28$$

$$2x^2 + 11x + 12 = 0$$

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

$$x = -4, -\frac{3}{2}$$

Solve by taking square roots:

$$(s - 2)^2 - 24 = 0$$

$$\sqrt{(s - 2)^2} = \pm \sqrt{24}$$

$$s - 2 = 2\sqrt{6}, -2\sqrt{6}$$

$$s = 2 + 2\sqrt{6}, 2 - 2\sqrt{6}$$

Solve by taking square roots:

$$\left(u + \frac{2}{3}\right)^2 - 18 = 0$$

$$\left(u + \frac{2}{3}\right)^2 = \pm\sqrt{18}$$

$$u + \frac{2}{3} = 3\sqrt{2}, -3\sqrt{2}$$

$$u = -\frac{2}{3} + 3\sqrt{2}, -\frac{2}{3} - 3\sqrt{2}$$

$$u = \frac{-2 + 9\sqrt{2}}{3}, \frac{-2 - 9\sqrt{2}}{3}$$

Solve by taking square roots:

$$\left(x + \frac{1}{2}\right)^2 + 40 = 0$$

$$\left(x + \frac{1}{2}\right)^2 = \pm\sqrt{-40}$$

$$x + \frac{1}{2} = 2\sqrt{10}i, -2\sqrt{10}i$$

$$x = -\frac{1}{2} + 2\sqrt{10}i, -\frac{1}{2} - 2\sqrt{10}i$$

Solve by completing the square.

$$\frac{4u^2}{4} - \frac{20u}{4} = -\frac{9}{4} \quad \left(\frac{5}{2}\right)^2 = \frac{25}{4}$$

$$u^2 - 5u + \frac{25}{4} = -\frac{9}{4} + \frac{25}{4}$$

$$\left(u - \frac{5}{2}\right)^2 = \pm\sqrt{4}$$

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

$$u = \frac{9}{2}, \frac{1}{2}$$

Solve by completing the square.

$$\frac{3u^2}{3} - \frac{12u}{3} = -\frac{14}{3}$$

$$u^2 - 4u + 4 = -\frac{14}{3} + 4 \quad \frac{\sqrt{2}}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{6}}{3}$$

$$\left(u - 2\right)^2 = \pm\sqrt{-\frac{2}{3}}$$

$$u - 2 = \frac{\sqrt{6}}{3}i, -\frac{\sqrt{6}}{3}i$$

$$u = 2 + \frac{\sqrt{6}}{3}i, 2 - \frac{\sqrt{6}}{3}i$$

Solve each using the quadratic formula:

$$x^2 - 3x - 10 = 0$$

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

$$x = \frac{3 \pm \sqrt{9 - 4(1)(-10)}}{2(1)}$$

$$= \frac{3 \pm \sqrt{9 + 40}}{2}$$

$$= \frac{3 \pm \sqrt{49}}{2}$$

$$= \frac{3 \pm 7}{2}$$

$$x = -2.5$$

Solve each using the quadratic formula:

$$4w^2 - 4w - 1 = 0$$

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

$$= \frac{4 \pm \sqrt{16 - 4(4)(-1)}}{2(4)}$$

$$= \frac{4 \pm \sqrt{16 + 16}}{8}$$

$$= \frac{4 \pm \sqrt{32}}{8}$$

$$= \frac{4 \pm 4\sqrt{2}}{8}$$

$$w = \frac{1 + \sqrt{2}}{2}, \frac{1 - \sqrt{2}}{2}$$

# Assignment:

Solving Quadratics 2

#1-12