

LESSON PLAN

Course: Grade 12 U Advanced Functions

Lesson : 1 - 8

Unit/Chapter: Polynomial Skills

Topic: Solving Quadratic Equations

▣ **homework check:** FM12 p. 31 exercise 1.11 #2 and
p. 29 exercise 1.10 #7 (from yesterday's handout)

▣ **note:** Solving Quadratic Equations

To solve any quadratic equation, we rely on factoring. To factor, the quadratic must be in standard form as in $Ax^2 + Bx + C = 0$. Once factored, we set each factor to zero to get the roots of the equation. For example,

$$\begin{aligned}6x^2 + 5x - 4 &= 0 \\(2x - 1)(3x + 4) &= 0 \\2x - 1 = 0 \quad 3x + 4 = 0 \\x = \frac{1}{2} \quad x = \frac{4}{3}\end{aligned}$$

$$\begin{aligned}6x^2 - 21x - 45 &= 0 \\3(2x^2 - 7x - 15) &= 0 \\3(2x + 3)(x - 5) &= 0 \\3 \neq 0 \quad 2x + 3 = 0 \quad x - 5 = 0 \\extraneous \quad x = -\frac{3}{2} \quad x = 5\end{aligned}$$

▣ **homework assignment:** FM12 p. 35 exercise 1.13 # 3 – 5

EXERCISE 1.13

3. Solve by factoring. Check your answers.

(a) $x^2 + x - 6 = 0$

(b) $y^2 + 7y + 12 = 0$

(c) $t^2 - 6t - 16 = 0$

(d) $w^2 - 4 = 0$

(e) $x^2 + 13x = -40$

(f) $m^2 = 5m + 14$

(g) $2x^2 + 12x - 54 = 0$

(h) $3m^2 - 75 = 0$

(i) $x^2 - 8x + 16 = 0$

(j) $t^2 + 10t + 25 = 0$

4. Solve and check.

(a) $3x^2 - 4x - 15 = 0$

(b) $6x^2 + 7x + 2 = 0$

(c) $9m^2 - 16 = 0$

(d) $8y^2 + 2y = 1$

(e) $2w^2 = 5 - 9w$

(f) $5x^2 + 20x - 60 = 0$

(g) $2y^2 + 12y - 18$

5. Solve and check.

(a) $4t^2 - 11t - 3 = 0$

(b) $3x^2 - 5x = 0$

(c) $3m^2 + 13m - 10 = 0$

(d) $4t^2 + 9 = 12t$

(e) $3y^2 = 15 - 4y$

(f) $12m^2 = 30m$

(g) $1 + 3n - 18n^2 = 0$