

8.7 – 8.9 Syllabus

Date	Assignments
4/3	8.7 Worksheet #2
4/5	EOC Review #1 & 2 Due/ 8.8 Worksheet
4/9	8.9 Worksheet
4/11	Review Worksheet
4/15	8.7 – 8.9 Super Quiz

8.7 Solving Quadratic Equations

Solving the quadratic equations by **factoring**.

(Make sure the equation is equals to 0)

Ex1) $x^2 - 9x = 0$

Factor

Factor Out GCF

Ex2) $9x^2 = 81x$

$-81x \quad -81x$

$9x^2 - 81x = 0$

Factor

$9x(x - 9) = 0$

$\frac{9x}{9} = \frac{0}{9}$

$x = 0$

$x - 9 = 0$

$x = 9$

$x(x - 9) = 0$

$x = 0$

$x - 9 = 0$

$+9 \quad +9$

$x = 9$

Ex3) $x^2 + 2x - 15 = 0$

Guess & Check

$$\underline{(x+5)} \underline{(x-3)} = 0$$

multiply = -15

Add = 2

$x+5=0$ $-5 \quad -5$ <hr/> $x = -5$	$x-3=0$ $+3 \quad +3$ <hr/> $x = 3$
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Ex4) $2x^2 - 9x - 56 = 0$

\downarrow \downarrow

$$\begin{array}{cc} (1x & -8) \\ (2x & 7) \end{array}$$

 $-16 + 7 = -9$ ✓

$$(x-8)(2x+7) = 0$$

$x-8=0$ $+8 \quad +8$ <hr/> $x = 8$	$2x+7=0$ $-7 \quad -7$ <hr/> $2x = -7$ $x = -\frac{7}{2}$
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$$\text{Ex5) } 11x = -x^2 - 18 \quad \text{Set } = 0$$

$$\begin{array}{r} +x^2 + 18 \\ +x^2 + 18 \\ \hline \end{array}$$

$$x^2 + 11x + 18 = 0$$

$$(x + 2)(x + 9) = 0$$

$$x + 2 = 0$$

$$x = -2$$

$$x + 9 = 0$$

$$x = -9$$

$$\text{Ex6) } 26x + 15 = -8x^2$$

$$\begin{array}{r} +8x^2 \\ +8x^2 \\ \hline \end{array}$$

$$8x^2 + 26x + 15 = 0$$

$$\begin{array}{r} \downarrow \qquad \qquad \downarrow \\ 2 \qquad \qquad 5 \\ 4 \qquad \qquad 3 \\ \hline \end{array}$$

$$20 + 6 = 26$$

$$(2x + 5)(4x + 3) = 0$$

$$2x + 5 = 0$$

$$\begin{array}{r} -5 \quad -5 \\ \hline \end{array}$$

$$2x = -5$$

$$x = -\frac{5}{2}$$

$$4x + 3 = 0$$

$$\begin{array}{r} -3 \quad -3 \\ \hline \end{array}$$

$$4x = -3$$

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

Try1) $3x^2 = 12x$

$$3x^2 - 12x = 0$$

$$3x(x - 4) = 0$$

$$x = 0$$

$$x - 4 = 0$$

$$x = 4$$

Try3) $6x^2 + 17x + 5 = 0$



3
2



1
5

$$2 + 15 = 17$$

$$(3x + 1)(2x + 5) = 0$$

$$3x + 1 = 0$$

$$x = -\frac{1}{3}$$

$$2x + 5 = 0$$

$$x = -\frac{5}{2}$$

Try2) $x^2 - 5x = 36$

$$x^2 - 5x - 36 = 0$$

$$(x - 9)(x + 4) = 0$$

$$x - 9 = 0$$

$$x = 9$$

$$x + 4 = 0$$

$$x = -4$$

Solving by Putting Square Root in Both sides when there's only x^2 in the equation. (the x -term is missing)

Ex7) $x^2 - 16 = 0$
 $+16 \quad +16$

- 1) Isolate the x^2
- 2) Square Root both sides
- 3) Add \pm on the #

Ex8) $x^2 - 6 = 43$

$+6 \quad +6$

$\sqrt{x^2} = \sqrt{49}$

$x = \pm 7$

$\sqrt{x^2} = \sqrt{16}$

$x = \pm 4$

$\sqrt{x^2} = \sqrt{2}$

$x = \pm \sqrt{2}$

$\sqrt{x^2} = \sqrt{27}$

\Rightarrow

$x = \pm 3\sqrt{3}$

$\sqrt{-16}$ Not a Real Root

$9 \quad 3$
 $3 \quad 3$

$$\text{Ex9)} \quad \frac{4x^2}{4} = \frac{25}{4}$$

$$\sqrt{x^2} = \sqrt{\frac{25}{4}}$$

$$x = \pm \frac{\sqrt{25}}{\sqrt{4}}$$

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

$$\text{Ex10)} \quad 3x^2 + 8 = 56$$

$$\begin{array}{r} -8 \quad -8 \\ \hline \end{array}$$

$$\frac{3x^2}{3} = \frac{48}{3}$$

$$\sqrt{x^2} = \sqrt{16}$$

$$x = \pm 4$$

$$\text{Try1) } 5x^2 - 18 = 37$$

$$5x^2 = 55$$

$$\sqrt{x^2} = \sqrt{11}$$

$$x = \pm\sqrt{11}$$

$$\text{Try2) } 27 - 3x^2 = 0$$

$$-3x^2 = -27$$

$$\sqrt{x^2} = \sqrt{9}$$

$$x = \pm 3$$