

March 9th

Due Today: HW 9.3

Due Tomorrow: HW 9.4

Unit 9: Quadratic Functions**Lesson 9.4: What method to solve Quads with?****Get Ready: Check your homework!****Answers to HW 9.3**

- | | | | |
|----------------------------|-------------------------------|---------------------------|------------------|
| 1) $\{12, -6\}$ | 2) $\{-1\}$ | 3) $\{1, -5.5\}$ | 4) No solution. |
| 5) $\{7, -2\}$ | 6) $\{-1.033, 2.366\}$ | 7) No solution. | 8) $\{-8.5, 8\}$ |
| 9) 0; one real solution | 10) -51 ; no real solutions | 11) 1; two real solutions | |
| 12) 81; two real solutions | 13) $\{1, 3\}$ | 14) $\{4, 7\}$ | |
| 15) $\{6, -10\}$ | 16) $\{14, -2\}$ | | |

Homework Review

$$\textcircled{4} \quad 12n^2 - 12n + 6 = 0$$

$$a = 12, b = -12, c = 6$$

$$X = \frac{+12 \pm \sqrt{(-12)^2 - 4(12)(6)}}{2(12)}$$

$$= \frac{12 \pm \sqrt{-144}}{24}$$

← No Real Solutions

$$\textcircled{3} \quad 2x^2 + 9x - 11 = 0$$

$$a=2, b=9, c=-11$$

$$x = \frac{-9 \pm \sqrt{(9)^2 - 4(2)(-11)}}{2(2)}$$

$$= \frac{-9 \pm \sqrt{169}}{4}$$

$$= \frac{-9 \pm 13}{4}$$

$$= \frac{-9+13}{4}, \frac{-9-13}{4}$$

$$= \frac{4}{4}, \frac{-22}{4}$$

$$x = 1, -5.5$$

$$\textcircled{2} \quad k^2 + 2k + 1 = 0$$

$$a = 1, b = 2, c = 1$$

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

$$= \frac{-2 \pm \sqrt{0}}{2}$$

$$= \frac{-2 \pm 0}{2}$$

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

$$= -1$$

$$\textcircled{6} \quad -9r^2 + 12r = -22$$

$$\quad \quad \quad +22 \quad +22$$

$$-9r^2 + 12r + 22 = 0$$

$$X = \frac{-12 \pm \sqrt{(12)^2 - 4(-9)(22)}}{2(-9)}$$

$$= \frac{-12 \pm \sqrt{936}}{-18}$$

$$= \frac{-12 \pm 30.58}{-18}$$

$$= \frac{-12 + 30.58}{-18}, \quad \frac{-12 - 30.58}{-18}$$

$$= \frac{18.58}{-18}, \quad \frac{-42.58}{-18}$$

$$X = -1.033, 2.346$$

$$\textcircled{8} \quad -13n^2 - n + 137 = -11n^2 + 1$$

$$-2n^2 - n + 136 = 0$$

$$x = \frac{1 \pm \sqrt{(-1)^2 - 4(-2)(136)}}{2(-2)}$$

$$x = \frac{1 \pm \sqrt{1089}}{-4}$$

$$= \frac{1 \pm 33}{-4}$$

$$= \frac{34}{-4}, \quad \frac{-32}{-4}$$

$$x = -8.5, 8$$

$$\textcircled{12} \quad \begin{array}{r} -7r^2 - 13r = -2r^2 - 4r \\ +2r^2 \quad +4r \quad +2r^2 +4r \\ \hline \end{array}$$

$$-5r^2 - 9r + 0 = 0$$

$$a = -5, b = -9, c = 0$$

$$b^2 - 4ac$$

$$(-9)^2 - 4(-5)(0)$$

$$81 - 0$$
$$\textcircled{81}$$

(15)

$$K^2 + 4K - 70 = -16$$

$$+70 +70$$

$$ax^2 + bx = -c$$

$$K^2 + 4K + 4 = 60 + 4$$

$$\frac{4}{2} = 2^2 = 4$$

$$K^2 + 4K + 4 = 64$$

$$\begin{array}{c} +4 \\ a \quad \times \quad 2 \\ 4 \end{array}$$

$$\sqrt{(K+2)^2} = \sqrt{64}$$

$$K+2 = \pm 8$$

$$K+2 = 8, \quad K+2 = -8$$

$$-2 \quad -2 \quad \quad -2 \quad -2$$

$$K = 6, -10$$

Factoring $\rightarrow$ Standard: $ax^2+bx+c=0$

Complete the Square $\rightarrow ax^2+bx=c$

Quad Formula $\rightarrow$ Standard

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

Quiz!

Algebra 1

Name _____

9.4 Quiz

Date _____ Algebra _____

Solve each equation by factoring.

1) $7x^2 + 7x - 14 = 0$

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

$$7(x+2)(x-1) = 0$$

$$\begin{array}{c} + \\ 2 \end{array} \quad \begin{array}{c} -1 \\ -2 \end{array}$$

$$x+2=0, x-1=0$$

$$x = -2, 1$$

Solve each equation by completing the square.

2) $x^2 + 6 = 14x - 39$

$$x^2 - 14x + 49 = -45$$

$$\frac{-14}{2} = (-7)^2 = 49$$

$$x^2 - 14x + 49 = 4$$

$$\sqrt{(x-7)^2} = \sqrt{4}$$

$$x-7 = \pm 2$$

$$x-7=2, x-7=-2$$

$$x = 9, -2$$

Solve each equation with the quadratic formula. Be sure to WRITE OUT THE QUADRATIC FORMULA FIRST and show all of your work! Round your answers to the nearest tenth if necessary.

3) $2n^2 + 4n - 39 = -3n$

$$2n^2 + 7n - 39 = 0$$

$$2n^2 + 7n - 39 = 0$$

$$a=2, b=7, c=-39$$

$$x = \frac{-7 \pm \sqrt{(7)^2 - 4(2)(-39)}}{2(2)}$$

$$= \frac{-7 \pm \sqrt{361}}{4}$$

$$= \frac{-7 \pm 19}{4}$$

$$= \frac{-7+19}{4}, \frac{-7-19}{4}$$

$$x = 3, -6.5$$

$$4b^2 + 40b + 64 = 0$$

FACTORING:

$$4b^2 + 40b + 64 = 0$$

$$4(b^2 + 10b + 16) = 0$$

$$4(b+8)(b+2) = 0$$

$$4 \neq 0, b+8=0, b+2=0$$

$$b = -8, b = -2$$

COMPLETING THE SQUARE:

$$4b^2 + 40b + 64 = 0$$

$$\frac{4b^2 + 40b}{4} = \frac{-64}{4}$$

$$b^2 + 10b + 25 = -16$$

$$\frac{10}{2} = 5^2 = 25$$

$$b^2 + 10b + 25 = 9$$

$$\sqrt{(b+5)^2} = \sqrt{9}$$

$$b+5 = \pm 3$$

$$b+5 = 3, b+5 = -3$$

$$b = -2, -8$$

QUADRATIC FORMULA:

$$4b^2 + 40b + 64 = 0$$

$$a = 4, b = 40, c = 64$$

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

$$= \frac{-40 \pm \sqrt{(40)^2 - 4(4)(64)}}{2(4)}$$

$$= \frac{-40 \pm \sqrt{576}}{8}$$

$$= \frac{-40 \pm 24}{8}$$

$$= \frac{-40+24}{8}, \frac{-40-24}{8}$$

$$= \frac{-16}{8}, \frac{-64}{8}$$

$$x = -2, -8$$

What Method is Best?

	When?	PROS	CONS
Factoring:	Standard if you see it.	- simple - we've done it a lot	it doesn't always work
Completing the Square:	$ax^2 + bx = -c$ $a=1$, b is even	//	- messy - confusing - weird
Quad. Formula	Standard	it always works - good song	- remember it - a lot of steps - silly mistakes

Unit 9: Quadratic Equations

Lesson #	Name	Recap	HW
9.1	Intro to Quadratics		HW 9.1
9.2	Solving Quads by Completing the Square		HW 9.2
9.3	Solving Quads using the Quadratic Formula		HW 9.3 QUIZ WED: - factoring, comp. the square, quad formula
9.4	Quiz + Picking a Method		HW 9.4

1) $p^2 - 64 = 0$

$\{-8, 8\}$

3) $x^2 - 4x + 7 = 4$

$\{3, 1\}$

2) $10r^2 - 2r + 3 = 0$

No solution.

4) $5x^2 + 2x - 4 = 3$

$\{1, -1.4\}$

Pick a solution method and solve the following equations:

1) $p^2 - 64 = 0$

2) $10r^2 - 2r + 3 = 0$

3) $x^2 - 4x + 7 = 4$

4) $5x^2 + 2x - 4 = 3$

If you are solving by factoring
or completing the square and
cannot factor or solve, YOU MUST
USE THE QUADRATIC FORMULA TO
CONFIRM THERE ARE NO REAL
SOLUTIONS