# Snow Packet Days 22 - 31

# Algebra I & Algebra I Support Blocks 1 & 2 (Notes, Practice work, & Assignment included) Mrs. Penni Powell

Please contact me with any questions using -LiveGrades messaging -Email at penni.powell@kl2.wv.us -Remind App messaging using class codes listed below Class code I<sup>st</sup> block: @ehspowell1 Class code 2<sup>nd</sup> block: @ehspowell2 -Google Voice Text Messaging (304) 460 - 5044

# PLEASE VISIT <u>YOUTUBE</u> FOR VIDEO LESSON THAT CORRELATES WITH YOUR NOTES !

SEARCH BY MY NAME "PENNI POWELL"

### TASKS FOR PAYS 22 - 31

### Days 22 - 26 are in your previous packet. Continue completing those assignments.

### Days 27 - 28 (May 4<sup>th</sup> & May 5th) Solving Quadratic Equations by Factoring Day 27 - Tasks I & 2, Day 28 - Task 3

Objective: The learner will be able to use the Zero-Product Property to factor quadratic equations. Task #1: Read over provided notes & watch the instructional YouTube video titled "Days 18 & 19" Task #2 Complete the examples using the template provide for practice. (I would suggest doing at <u>least four</u> questions from the examples. So, you get the hang of what you should be doing. You do <u>not</u> have to turn in this practice work, this is just practice to check for understanding!).

Task #3: Complete "Solving quadratic equations by Factoring" maze

For additional examples and explanations, refer to pg. 378-379 examples 1 & 2 in your textbook. For additional practice complete the IXL lesson "BB.8" to SmartScore 80. More challenging IXL lessons can be found under "J.8" and "C.6"

### Days 29 - 30 (May 6<sup>th</sup> & May 7th) Solving Quadratic Equations Using Square Roots Day 29- Tasks | & 2, Day 30 - Task 3

Objective: The learner will be able to solve quadratic equations using square roots. Task #1: Read over provided notes & watch the instructional YouTube video titled "Days 20 & 21" Task #2 Complete the examples using the template provide for practice. (I would suggest doing at <u>least four</u> questions from the examples. So, you get the hang of what you should be doing. You do <u>not</u> have to turn in this practice work, this is just practice to check for understanding!).Task #3: Complete the self-checking handout *"Why didn't the mummy have friends?"* For additional examples and explanations, refer to pg. 498 – 499 examples 1 - 3 in your textbook.

For additional practice complete the IXL lesson "BB.6" to SmartScore 80. More challenging IXL lessons can be found under "J.6" and "C.5"

### Days 31 & 32 (May $8^{th}$ & May 11th) Solving Quadratic Equations by Completing the Square

Day 31 – Tasks I & 2, Day 32 – Task 3 (Day 32 leads into the next packet) Objective: The learner will be able to solve quadratic equations by completing the square. Task #1: Read over provided notes & watch the instructional YouTube video titled "Days 22 & 23" Task #2 Complete the examples using the template provide for practice. (I would suggest doing at least four questions from the examples. So, you get the hang of what you should be doing. You do <u>not</u> have to turn in this practice work, this is just practice to check for understanding!). Task #3: Complete the handout game of Clue! by Completing the Square For additional examples and explanations, refer to pg. 506 - 507 examples 1 - 3 in your textbook. For additional practice complete the IXL lesson "BB.10" to SmartScore 80. More challenging IXL lessons can be found under "J.10" and "C.7"

#### •Remember you must show all work for each assignment to earn credit!

If additional practice is needed, I encourage you to Find lessons on IXL to practice. Logon through your Clever account. In the IXL search bar, search for lessons using the title of the day, such as "adding & subtracting polynomials" and pick an Algebra I lesson. Finally, work through questions until you get a Smart Score of 80!

Lastly. for all textbook references & assignments, you should have an issued textbook at home or you can utilize your online textbook (Big Ideas Math).

### Days 27 & 28: Solving Quadratic Equations by Factoring SOLVING QUADRATIC EQUATIONS BY FACTORING NOTES

Lesson Plan - Solving Quadratic Equations by Factoring

**Objective:** Students will be able to find the solutions to a quadratic equation by factoring.

**Do Now:** What are two ways that we can find the solutions to a quadratic equation? by graphing the parabola and by finding the square roots

Alternate Do Now: Factor the trinomial.  $x^2 - 10x + 16$  (x - 2)(x - 8)

#### Activity I: Warm-Up - Solving an Equation of Factors

In previous lessons we solved quadratic equations by graphing and by finding the square roots of the equation. We can also find the solutions to a quadratic equation by factoring.

After a quadratic equation has been factored, both factors must be solved for the variable. For example, if (x + 13)(x - 4) = 0 are the factors of a quadratic equation, then set each factor equal to zero and solve for x.

Example: Solve  $(x + \underline{13})(x - 4) = 0$   $(x + \underline{13})(x - 4) = 0$  x + 13 = 0 x + 13 = 0 x + 13 = 0 x - 4 = 0 x - 4 = 0 x - 4 = 0 x - 4 = 0 x - 4 = 0 x - 4 = 0 x - 4 = 0Solve for x. x = -13x = 4

You can check your answers by substituting each solution into the equation.

On Y our Own: Solve the equation $x^2 - 4x - 32 = 0$ . Check your answers. x = 8, -4	When solving quadratic equations, the equation must be in standard form (equal to zero). Sometimes you must manipulate the equation so that is in standard form.	Example #2: Solve $x^2 - 35 = -2x$ $x^2 - 35 = -2x$ Add 2x to both sides.	$\frac{+2x}{x^2 + 2x - 35} = 0$ Factor $x^2 + 2x - 35$ . $(x + 5)(x - 7) = 0$	x + 7 = 0 $x - 5 = 0$ Draw a line separating the factors and set $x + 7 = 0$ $x - 5 = 0$ each one equal to zero.	$\frac{-\frac{1}{2}}{x=7} = \frac{-1}{x=5}$ Solve for x.	CHECK CHECK	$x^2 - 35 = -2x$ $x^2 - 35 = -2x$ $(-7)^2 - 35 = -2(-7) - 2$ $(5)^2 - 35 = -2(5) - 2$	$49 - 35 = 14 \frac{2}{3}$	$14 = 14 \sqrt{-10} - 10 \sqrt{-10}$	Solve the equation $x^2 + 12x = -36$ . Check your answers. x = -6 3
HECK $(+ \frac{13}{13})(x - 4) = 0$ $(x + 13)(x - 4) = 0$ $(x + 13)(x - 4) = 0$ $(x + 13)(x - 4) = 0$	$\frac{1}{10} - (1 - 1) = 0  (1 $	$= \underline{0 \ 4}$ <b>n</b> Your Own: <b>n</b> 2 <b>x</b> - 4 <b>j</b> ( <b>x</b> - 9) = 0 <b>o</b> 4	ctivity II: Minilesson – Solving Quadratic Equations by Factoring	Remember the steps for factoring a trinomial. Use the same procedure of find the factors of a quadratic equation. The set each factor equal to zero ad solve for the variable.	<b>xample</b> #1: (Optional worksheet attached) olve $x^2 + 7x + 12 = 0$	+ 7x + 12 = 0 $+ 3)(x + 4) = 0$ Factor $x^2 + 7x + 12$ .	+ 3 = 0 + 3 = 0 + 4 = 0  Draw a line separating the factors and set $ + 3 = 0 + 3 = 0 + 4 = 0 $ cach one equal to zero. $ + 3 = 0 + 4 = 0$	$\frac{-3}{x} = 3$ $\frac{-4}{x} = 4$ Solve for x. x = -3	$\frac{\text{HECK}}{1+7x+12} = 0 \qquad \frac{\text{CHECK}}{x^2+7x+12} = 0$	<b>3</b> ) <sup>2</sup> + 7(-3) + 12 = $\frac{1}{0.2}$ <b>(.4</b> ) <sup>2</sup> + 7(-4) + 12 = $\frac{1}{0.2}$ = $\frac{1}{0.2}$ <b>0</b> = $0 $ <b>2</b>

### Zero Product Property:

If the product of two factors is zero, then at least one of the factors must be zero.

Steps for Solving Quadratics by Using Zero Product Property

- 1. Make sure the equation \_\_\_\_\_.
- 2. \_\_\_\_\_ the polynomial completely.
- 3. Set each \_\_\_\_\_\_ or \_\_\_\_\_ equal to \_\_\_\_\_.
- 4. Solve each \_\_\_\_\_\_.

Examples: Factor completely and then solve.

a) (x-2)(x+3) = 0 b) 3x(2x+5) = 0

c) 
$$x^2 + 10x + 21 = 0$$
  
d)  $x^2 - x - 10 = -8$ 

e) 
$$x^2 = -10x - 21$$
 f)  $6x^2 + x - 15 = 0$ 

#### Zero Product Property:

If the product of two factors is zero, then at least one of the factors must be zero.

If ab=0, then a=0 or b=0

Steps for Solving Quadratics by Using Zero Product Property

- 1. Make sure the equation is set = to zero
- 2. Factor the polynomial completely.
- 3. Set each equation or GCF equal to zero
- 4. Solve each <u>equation</u>

Examples: Factor completely and then solve.

a) (x-2)(x+3) = 0b) 3x(2x+5) = 0XYP d)  $x^2 - x - 10 =$ c)  $x^2 + 10x + 21 = 0$ (x+7)(x+3)=0 X+3=0 X+7=D (x-2)(x+1)=0 1 =- 3 e)  $x^2 = -10x - 21$ f)  $6x^2 + x - 15 = 0$ 1.6 1-15 +21+10x +1Dx +21 3.2 (3x+ 5) (2x-3 x2+10x+21= D ЭX (x+7)(x+3)=0



## DAYS 29 & 30: Solving Quadratic Equations Using Square Roots SOLVING QUADRATIC EQUATIONS USING SQUARE ROOTS NOTES

	Solving Quadratic Equations
	USING Square Roots
	Solve 3x2-27=0
	+ 27 +27 O Solve for
	$\frac{3x^2 = 27}{x^2}$
	x2=9
	$\sqrt{x^2} = \sqrt{9}$ Square root cancels exponent
7	x=±3 of 2.
< · · ·	x=3 and x=-3
EXE	Solve $x^2 - 10 = -10$ * solve for $x^2$
	X2=0 * Take V of
1	JXA = 0 both sides
	X = 0
	A DRO SDIGHTON DRUG
EXO	Solve $-5x^2 + 11 = 16$
	$-\overline{b}x^2 = 5$
	-5 -5
	$x^2 = -1 \leq can't take v$
	Has no real Solutions

EXQ	Solve (x-1)2 = 25
	$(x-1)^{2} = \sqrt{25}$ x-x = ±5
	X = 135
	x=1+5 x=1-5
	[X=0] AND [X=-4]
×	1 NUL 5 and 8=15



l. x <sup>2</sup> = 64	0. x <sup>2</sup> = 484	weisappe		. x <sup>2</sup> - 25	6 = 0		T. x <sup>2</sup>	+ 16 = :	16	
. x <sup>2</sup> - 9 = -45	1. 9x <sup>2</sup> = 49		N	1. 81x <sup>2</sup>	= 16		R. 6)	(² - 54 =	0	
	a									
$32 - x^2 = 0$	U. 3x <sup>2</sup> -48=	:0	E.	. 6(x²-:	l) = 18		F5	x <sup>2</sup> = -90		
6x <sup>2</sup> + 5 = 23	W. 4x <sup>2</sup> - 20 =	= 124	A	. 5x²-2	$0 = x^2 +$	80	P. x <sup>2</sup>	+ 4x - 2	225 = 4	x

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## DAYS 31 & 32: Solving Quadratic Equations by Completing the Square SOLVING QUADRATIC EQUATIONS BY COMPLETING THE SQUARE NOTES



**Completing the Square Notes** 

Example 2
 Example 3

 Solve by completing the square:
 
$$m^2 + 20m + 73 = 9$$
 $-73 - 73$ 
 $-73 - 73$ 
 $m^2 + 20m + 100 = -64 + 100$ 
 $m^2 + 20m + 100 = -64 + 100$ 
 $m^2 + 20m + 100 = -64 + 100$ 
 $m^2 + 20m + 100 = -36$ 
 $m^2 + 20m + 100 = -36$ 
 $\sqrt{(m + 10)^2} = \sqrt{36}$ 
 $m^2 + 20m + 100 = -36$ 
 $\sqrt{(m + 10)^2} = \sqrt{36}$ 
 $m + 10 = \pm 6$ 
 $m + 10 = \pm 6$ 
 $m + 10 = \pm 6$ 
 $m + 10 = -66$ 
 $-70 - 10$ 
 $-70 - 10$ 
 $m + 10 = \pm 6$ 
 $x - 5 = \pm 11$ 
 $m + 10 = \pm 6$ 
 $x - 5 = \pm 11$ 
 $m + 10 = \pm 6$ 
 $x - 5 = \pm 11$ 
 $m + 10 = -16$ 
 $x - 5 = \pm 11$ 
 $m + 10 = \pm 6$ 
 $x - 5 = \pm 11$ 
 $m = -4$ 
 $m = -16$ 
 $m = -4$ 
 $m = -16$ 
 $m = -16$ 
 $x - 5 = \pm 11$ 
 $m = -4$ 
 $m = -16$ 
 $m^2 - 16n + 33 = -6$ 
 $-36 - 36$ 
 $n^2 - 16n + 64 = -39 + 164$ 
 $x^2 - 20k + 36 = 0$ 
 $n^2 - 16n + 64 = -39 + 164$ 
 $x^2 - 20k + 100 = 64$ 
 $n - 8 = \pm 5$ 
 $\sqrt{(n - 8)^2} = \sqrt{25}$ 
 $n - 8 = \pm 5$ 
 $k - 10 = \pm 8$ 
 $n - 8 = \pm 5$ 

Name:\_

### Practice Problems ONLY

nan mara ang ang tang tang tang tang tang tang	- Antene -				
Solve each equ	ation by completing the square.				
1) $x^2 + 8x - 20 = 0$	2) $n^2 - 4n - 70 = 0$				
3) $n^2 - 20n + 19 = 0$	4) $x^2 + 14x + 13 = 0$				
5) $x^2 - 2x - 26 = -2$	6) $a^2 + 10a + 8 = -8$				
7) $p^2 - 18p + 41 = -4$	8) $a^2 + 2a - 56 = 4$				
	A Barrense State				



#### INSTRUCTIONS

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- Franny Fuschia has Algebra class 6th period. Before she arrives to class, she realizes she lost her Algebra homework! She must have left it somewhere in the school before then. She doesn't remember where or when she lost it, but surely someone must have found it! She needs to figure it out before class starts!
- Who found Franny Fuschia's homework? Where did they find it? And when?
- Solve the "clues" on the other page. After solving each clue, find your answer on this page and cross off the corresponding box.
- When you complete all of the clues, there should only be 3 boxes unchecked. This
  will solve the mystery!

	When y	ou think	you've solved	it.	, scan the	OR	code to	check	if v	ou're ria	ht!
-				_							

Who?	Where?	When?				
□ Rebecca Red - 4 $\pm \sqrt{26}$	<ul> <li>Algebra Classroom</li> <li>16,-2</li> </ul>	<b>First period</b> $\frac{3}{2}, \frac{-7}{2}$				
□ Olivia Orange 8 ± √5	□ Auditorium - 4,- 10	Second Period 6,-5				
□ Yolanda Yellow - $3 \pm 6\sqrt{2}$	□ Cafeteria 7,-2	Third Period 1,-2				
□ Gregory Green 4,-2	Courtyard	Lunch $6 \pm \sqrt{13}$				
<ul> <li>Billy Blue</li> <li>1,-1</li> </ul>	□ Math Office $1 \pm \sqrt{39}$	<b>D</b> Fourth Period $1 \pm 2\sqrt{3}$				
• Peter Purple $8 \pm 4\sqrt{3}$	$\square Media Center$	<b>D</b> Fifth Period $1 \pm 2\sqrt{10}$				

