Snow Packet Days 17 – 26

Algebra I Honors & Algebra I Honors Support

Block 3

(Notes, Practice work, & Assignment included)

Mrs. Penni Powell

Please contact me with any questions using
-LiveGrades messaging
-Email at penni.powell@k12.wv.us
-Remind App messaging using class codes listed below
Class code 3rd block: @ehspowell3
-Google Voice Text Messaging (304) 460 - 5044

PLEASE VISIT YOUTUBE FOR VIDEO LESSON THAT CORRELATES WITH YOUR NOTES!

SEARCH BY MY NAME "PENNI POWELL"

TASKS FOR DAYS 17 - 26

Day 17 (April 20th) Brain Break Scavenger Hunt

Task 1: Complete the scavenger hunt you began on Day 16. Have fun! Don't forget to email me the prezi! (penni.powell@k12.wv.us)

Days 18 - 19 (April 21st & 22nd) Solving Quadratic Equations by Factoring

Day 18 - Tasks 1 & 2, Day 19 - 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 least four questions from the examples. So, you get the hang of what you should be doing. You do **not** have to turn in this practice work, this is just practice to check for understanding!).
Task #3: Complete *"Solving quadratic equations by Factoring"* scavenger hunt
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 20-21 (April 23rd & 24th) Solving Quadratic Equations Using Square Roots

Day 20 - Tasks 1 & 2, Day 21 - 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 least four questions from the examples. So, you get the hang of what you should be doing. You do **not** 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 22-23 (April 27th & 28th) Solving Quadratic Equations by Completing the Square

Day 22 - Tasks 1 & 2, Day 23 - Task 3

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 **not** 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"

Day 24 (April 29th) Deriving the Quadratic Formula

Objective: The learner will be able to convert the polynomial standard form to the quadratic formula. This lesson will provide further understanding of lessons for day 25 & 26.
Task #1: Read over the notes handout *"Where did the Quadratic Formula Come From?"*
Task #2: Complete the *"Deriving the Quadratic Formula"* card sort & *"Write the Steps to Derive the Quadratic Formula"* page together. As you write out a step, find the card that corresponds to the step in the card sort.
For additional examples and explanations, refer to pg. 516 - 517 examples 1 & 2 in your textbook.

Days 25 & 26 (April 30th & May 1st) Solving Quadratic Equations by Using the Quadratic Formula

Day 25 – Tasks 1 & 2, Day 26 – Task 3
Objective: The learner will be able to solve quadratic equations using the Quadratic Formula
Task #1: Read over provided review template & watch the instructional YouTube video titled "Days 24 & 25"
Task #2 Complete the practice cut & paste activity titled *"Quadratic Formula"*. Be sure to work out the problems to gather an understanding of the use of the Quadratic Formula. (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 **not** have to turn in this practice work, this is just practice to check for understanding!).Task #3: Complete the partner activity *"Around the Clock! Quadractic Formula Partner Scavenger Hunt"*
For additional examples and explanations, refer to pg. 516 - 517 examples 1 & 2 in your textbook.
For additional practice complete the IXL lesson "BB.11" to SmartScore 80. More challenging IXL lessons can be found under "J.11" and "C.8"

***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 18 & 19: 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 $(x + 13)(x - 4) = 0$

$(x + 13)(x - 4) = 0$

$x + 13 = 0$	$x - 4 = 0$
$x + 13 = 0$	$x - 4 = 0$
$-13 \quad -13$	$+4 \quad +4$
$x = -13$	$x = 4$

Draw a line separating the factors and set each one equal to zero.

Solve for x.

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

CHECK
$(x + 13)(x - 4) = 0$

$((-13) + 13)((-13) - 4) = 0$?

$(0)(-17) = 0$?

$0 = 0$ √

CHECK
$(x + 13)(x - 4) = 0$

$((4) + 13)((4) - 4) = 0$?

$(17)(0) = 0$?

$0 = 0$ √

On Your Own:
Solve $(2x - 4)(x - 9) = 0$
$x = 2, 9$

Activity II: Minilesson – Solving Quadratic Equations by Factoring

Remember the steps for factoring a trinomial. Use the same procedure to find the factors of a quadratic equation. The set each factor equal to zero and solve for the variable.

Example #1: (Optional worksheet attached)
Solve $x^2 + 7x + 12 = 0$

$x^2 + 7x + 12 = 0$
$(x + 3)(x + 4) = 0$ — Factor $x^2 + 7x + 12$.

$x + 3 = 0$ | $x + 4 = 0$ — Draw a line separating the factors and set each one equal to zero.

$x + 3 = 0$ | $x + 4 = 0$
$-3 \quad -3$ | $-4 \quad -4$ — Solve for x.

$x = -3$ | $x = -4$

CHECK
$x^2 + 7x + 12 = 0$

$(-3)^2 + 7(-3) + 12 = 0$?

$0 = 0$ √

CHECK
$x^2 + 7x + 12 = 0$

$(-4)^2 + 7(-4) + 12 = 0$?

$0 = 0$ √

On Your 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 $x^2 - 35 = -2x$

$x^2 - 35 = -2x$
$+2x \quad +2x$ — Add $2x$ to both sides.

$x^2 + 2x - 35 = 0$
$(x + 5)(x - 7) = 0$ — Factor $x^2 + 2x - 35$.

$x + 7 = 0$ | $x - 5 = 0$ — Draw a line separating the factors and set each one equal to zero.

$x + 7 = 0$ | $x - 5 = 0$
$-7 \quad -7$ | $+5 \quad +5$ — Solve for x.

$x = -7$ | $x = 5$

CHECK
$x^2 - 35 = -2x$

$(-7)^2 - 35 = -2(-7)$?

$49 - 35 = 14$?

$14 = 14$ √

CHECK
$x^2 - 35 = -2x$

$(5)^2 - 35 = -2(5)$?

$25 - 35 = -10$?

$-10 = -10$ √

On Your Own:
Solve the equation $x^2 + 12x = -36$. Check your answers.
$x = -6$

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 equation.

Examples: Factor completely and then solve.

a) $(x-2)(x+3)=0$

$x-2=0$ $\quad +2\ +2$ $\quad x=2$

$x+3=0$ $\quad -3\ -3$ $\quad x=-3$

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

$\frac{3x}{3}=\frac{0}{3}$ $\quad x=0$

$2x+5=0$ $\quad -5\ -5$ $\quad 2x=-5$ $\quad x=-\frac{5}{2}$

c) $x^2+10x+21=0$

$(x+7)(x+3)=0$

$x+7=0$ $\quad x=-7$

$x+3=0$ $\quad x=-3$

d) $x^2-x-10=-8$

$+8\ \ +8$

$x^2-x-2=0$

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

$x=2$ $\quad x=-1$

e) $x^2-10x-21$

$+21\ +10x\ \ +10x+21$

$x^2+10x+21=0$

$(x+7)(x+3)=0$

$x=-7,-3$

1·6, 3·2

f) $6x^2+x-15=0$ $\quad$ 1·15, 3·5

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

$3x+5=0$ $\quad -5\ -5$ $\quad \frac{3x}{3}=\frac{-5}{3}$ $\quad x=-\frac{5}{3}$

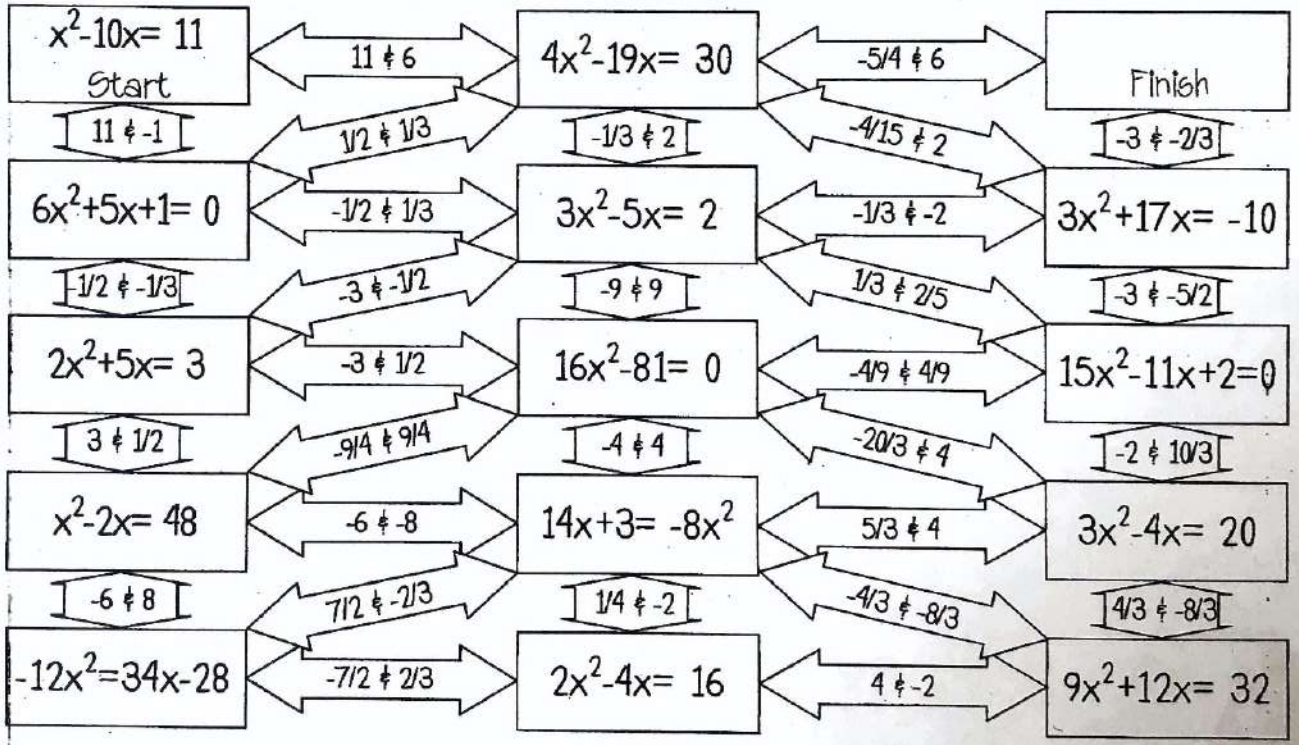
$2x-3=0$ $\quad +3\ +3$ $\quad \frac{2x}{2}=\frac{3}{2}$ $\quad x=\frac{3}{2}$

Solving quadratic Equations by Factoring

Some boxes might not be used

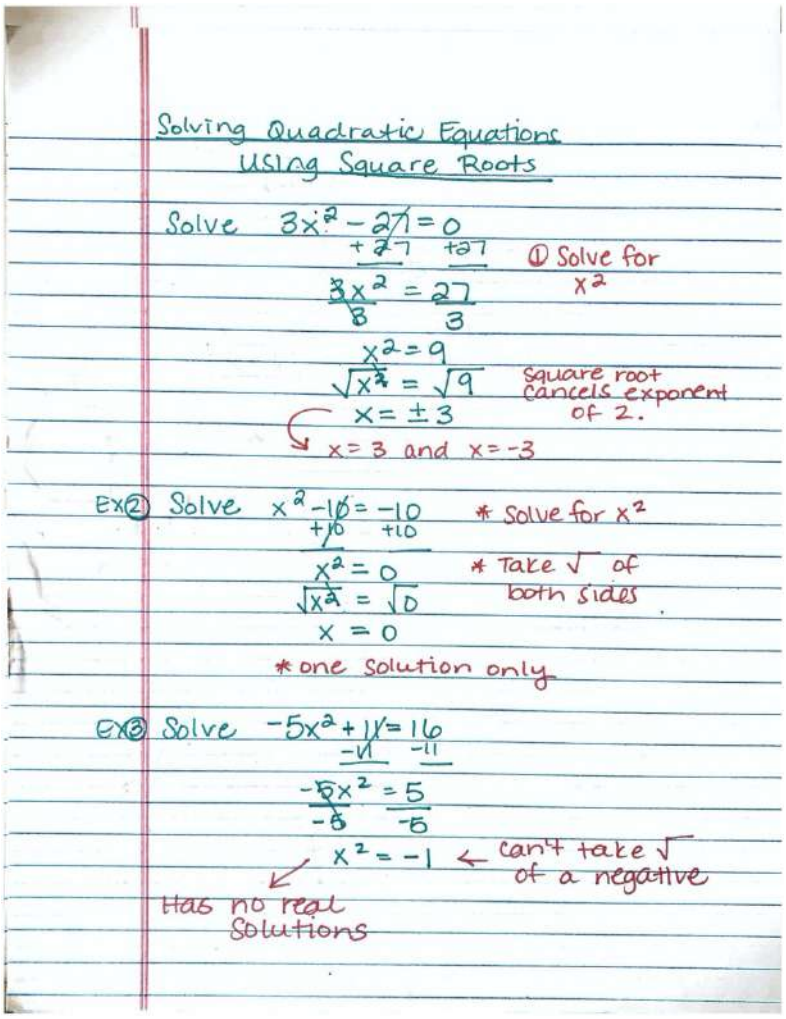
Name _____

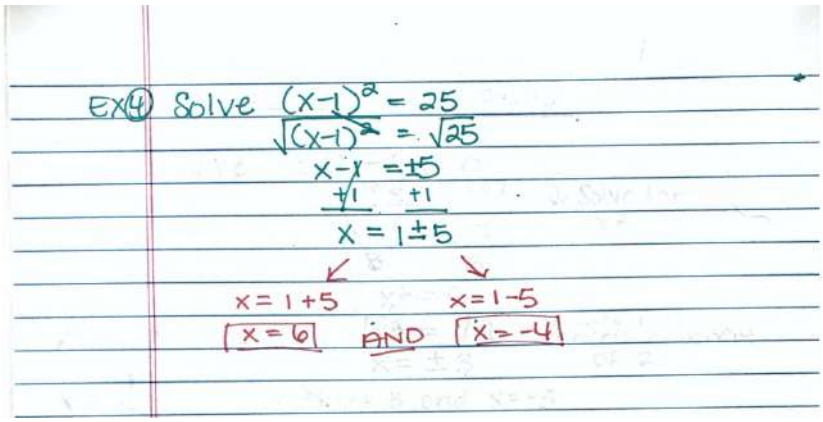
Solve each equation by factoring. Begin at the "Start" box and work your way through the maze until you reach the "Finish" box.



DAYS 20 & 21: Solving Quadratic Equations Using Square Roots

Solving Quadratic Equations Using Square Roots Notes





SOLVING QUADRATICS USING SQUARE ROOTS

YOU CAN SOLVE $X^2 = D$, BY TAKING THE Square root OF EACH SIDE.

- WHEN $D > 0$, $X^2 = D$ HAS Two REAL SOLUTIONS, $X = \pm\sqrt{d}$
- WHEN $D = 0$, $X^2 = D$ HAS One REAL SOLUTIONS, $X = 0$
- WHEN $D < 0$, $X^2 = D$ HAS No REAL SOLUTIONS

$3X^2 - 27 = 0$

$X = 3, -3$

$-5X^2 + 11 = 16$

no solution

$(X - 1)^2 = 25$

$X = 6$ $x = -4$

USE WHEN...

- THE FORM IS $X^2 = d$

SOLVING QUADRATICS USING SQUARE ROOTS

YOU CAN SOLVE $X^2 = D$, BY TAKING THE _____ OF EACH SIDE.

- WHEN $D > 0$, $X^2 = D$ HAS _____ REAL SOLUTIONS, $X = \pm\sqrt{d}$
- WHEN $D = 0$, $X^2 = D$ HAS _____ REAL SOLUTIONS, $X = 0$
- WHEN $D < 0$, $X^2 = D$ HAS _____ REAL SOLUTIONS

$3X^2 - 27 = 0$

$-5X^2 + 11 = 16$

$(X - 1)^2 = 25$

USE WHEN...

- THE FORM IS _____

Name_____ Period_____

Why didn't the mummy have friends?

Solve by finding the square roots. Some answers appear more than once.

N. $x^2 = 64$	O. $x^2 = 484$	L. $x^2 - 256 = 0$	T. $x^2 + 16 = 16$
H. $x^2 - 9 = -45$	I. $9x^2 = 49$	M. $81x^2 = 16$	R. $6x^2 - 54 = 0$
S. $32 - x^2 = 0$	U. $3x^2 - 48 = 0$	E. $6(x^2 - 1) = 18$	F. $-5x^2 = -90$
D. $6x^2 + 5 = 23$	W. $4x^2 - 20 = 124$	A. $5x^2 - 20 = x^2 + 80$	P. $x^2 + 4x - 225 = 4x$

no solution	±2	±6	±5	$\pm 4\sqrt{2}$	0	±22	±22	±6	±3	±5	±15	±15	±2	$\pm\sqrt{3}$
±4	±15	$\pm\frac{7}{3}$	±8	no solution	$\pm\frac{7}{3}$	$\pm\frac{4}{9}$	$\pm 4\sqrt{2}$	±2	±16	$\pm 3\sqrt{2}$				

DAYS 22 & 23: Solving Quadratic Equations by Completing the Square

Solving Quadratic Equations by Completing the Square Notes

Completing the Square Notes Name:_____

Solving by Completing the Square

1) Rewrite the equation so that all terms containing the variable are on one side and the constant is on the other.
2) Find half of "b" and square it. Add this number to both sides.
3) Factor the perfect square trinomial on the left hand side of the equation. Combine together any like terms on the right hand side.
4) Take the square root of each side.
5) Solve for the variable.

Example 1

Solve by completing the square.
$x^2 + 6x - 91 = 0$

Step 1: $x^2 + 6x - 91 = 0$
$+91 \quad +91$ ← Add 91

Step 2: $x^2 + 6x + \underline{9} = 91 \underline{+9}$

Half of 6 is 3. $3^2 = 9$

Step 3: $x^2 + 6x + 9 = 100 \rightarrow \underline{(x+3)^2} = 100$

Factor this side → Put it here

Step 4: $\sqrt{(x+3)^2} = \sqrt{100}$ Take square root of both sides → $x+3 = \pm 10$

Step 5: $x + 3 = \pm 10$

Solve each equation!!!

$x + 3 = 10$
$-3 \quad -3$
$x = 7$

$x + 3 = -10$
$-3 \quad -3$
$x = -13$

$x = \{7, -13\}$

Completing the Square Notes Name:_____

Example 2

Solve by completing the square:

$m^2 + 20m + 73 = 9$

$-73 \quad -73$

$m^2+20m+100=-64+100$

$m^2+20m+100=36$

$\sqrt{(m+10)^2}=\sqrt{36}$

$m+10=\pm 6$

$m+10=6$ $\quad$ $m+10=-6$

$-10 \quad -10$ $\quad$ $-10 \quad -10$

$m=-4$ $\quad$ $m=-16$

Example 3

Solve by completing the square:

$x^2 - 10x - 96 = 0$

$+96 \quad +96$

$X^2-10X+25=96+25$

$X^2-10X+25=121$

$\sqrt{(X-5)^2}=\sqrt{121}$

$X-5=\pm 11$

$X-5=11$ $\quad$ $X-5=-11$

$+5 \quad +5$ $\quad$ $+5 \quad +5$

$X=16$ $\quad$ $X=-6$

Example 4

Solve by completing the square:

$n^2 - 16n + 33 = -6$

$-33 \quad -33$

$n^2-16n+64=-39+64$

$n^2-16n+64=25$

$\sqrt{(n-8)^2}=\sqrt{25}$

$n-8=\pm 5$

$n-8=5$ $\quad$ $n-8=-5$

$+8 \quad +8$ $\quad$ $+8 \quad +8$

$n=13$ $\quad$ $n=3$

Example 5

Solve by completing the square:

$k^2 - 20k + 36 = 0$

$-36 \quad -36$

$K^2-20K+100=-36+100$

$K^2-20K+100=64$

$\sqrt{(K-10)^2}=\sqrt{64}$

$K-10=\pm 8$

$K-10=8$ $\quad$ $K-10=-8$

$+10 \quad +10$ $\quad$ $+10 \quad +10$

$K=18$ $\quad$ $K=2$

Practice Problems ONLY

Completing the Square HW

Name:_____

Solve each equation 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) $a^2 + 2a - 56 = 4$

Name _____ Date _____

Completing the Square Clue

INSTRUCTIONS

- 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 you think you've solved it, scan the QR code to check if you're right!

Who?	Where?	When?
❑ Rebecca Red $-4 \pm \sqrt{26}$	❑ Algebra Classroom $16, -2$	❑ First period $\frac{3}{2}, \frac{-7}{2}$
❑ Olivia Orange $8 \pm \sqrt{5}$	❑ 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 $1, -15$	❑ Lunch $6 \pm \sqrt{13}$
❑ Billy Blue $1, -1$	❑ Math Office $1 \pm \sqrt{39}$	❑ Fourth Period $1 \pm 2\sqrt{3}$
❑ Peter Purple $8 \pm 4\sqrt{3}$	❑ Media Center $\frac{-5 \pm \sqrt{53}}{2}$	❑ Fifth Period $1 \pm 2\sqrt{10}$

Completing the Square Clue

Solve each quadratic equation by completing the square.

1. $x^2 - 16x + 59 = 0$	2. $x^2 - 2x - 39 = 0$
3. $x^2 + 14x - 15 = 0$	4. $x^2 - 14x - 37 = -5$
5. $x^2 - 16x + 19 = 3$	6. $x^2 - 12x + 29 = 6$
7. $x^2 = 63 - 6x$	8. $x^2 = -40 - 14x$

Completing the Square Clue

9. $x^2 + 5x - 7 = 0$	10. $x^2 - x - 30 = 0$
11. $6x^2 - 12x - 48 = 0$	12. $8x^2 + 16x - 42 = 0$
13. $2x^2 + 16x - 23 = -3$	14. $2x^2 - 4x - 17 = 5$
15. $2x^2 - 10x - 28 = 0$	Check your answer here!

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DAYS 24: Deriving the Quadratic Formula

DERIVING THE QUADRATIC FORMULA

Where did the Quadratic Formula Come From?

The quadratic formula was derived from ________________ the ____________ for the generic quadratic: $y = ax^2 + bx + c$.

Complete the square for: $ax^2 + bx + c = 0$

Step 1: Divide all terms by a to get x^2 with a coefficient of 1.

Step 2: Subtract $\frac{c}{a}$ from both sides.

Step 3: Add half of the middle term squared to both sides: $+\left(\frac{b}{2a}\right)^2$

Step 4: Re-write the perfect square as a binomial factor squared.

$$\left(x+\frac{b}{2a}\right)^2$$

Step 5: Multiply to make common denominators on the right side.

Step 6: Add the fractions on the right side.

Step 7: Square root both sides.

Step 8: Isolate the x variable by subtracting $\frac{b}{2a}$ from both sides.

Step 9: Simplify by re-writing the numerator over the common denominator.

Memorize the quadratic formula!!! You will need to know the formula by heart. Practice by singing the following song as you write the formula:

"x equals negative b, plus or minus square root… of b squared minus 4ac, divided by 2a"

Write the Steps to Derive the Quadratic Formula

Name ____________________

Date ______________ Per ________

Start with: ____________________

Step 1 ____________________

Step 2 ____________________

Step 3 ____________________

Step 4 ____________________

Step 5 ____________________

Step 6 ____________________

Step 7 ____________________

Step 8 ____________________

Step 9 ____________________

End with : ____________________

Deriving the Quadratic Formula

Name _____

Date _____ Per _____

Start

Step 1

Step 2

Step 3

Step 4

Step 5

Step 6

Step 7

Step 8

Step 9

Quadratic Formula

$x^2+\frac{b}{a}x+\left(\frac{b}{2a}\right)^2=-\frac{c}{a}+\left(\frac{b}{2a}\right)^2$

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

$ax^2+bx+c=0$

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

$\left(x+\frac{b}{2a}\right)^2=-\frac{c}{a}+\frac{b^2}{4a^2}$

$\frac{ax^2}{a}+\frac{bx}{a}+\frac{c}{a}=\frac{0}{a}$

Deriving the Quadratic Formula - Card Sort

$x^2+\frac{b}{a}x+\_\_\_\_=-\frac{c}{a}+\_\_\_\_$

$\sqrt{\left(x+\frac{b}{2a}\right)^2}=\sqrt{\frac{b^2-4ac}{4a^2}}$

$\left(x+\frac{b}{2a}\right)^2=\frac{b^2-4ac}{4a^2}$

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

$\left(x+\frac{b}{2a}\right)^2=-\frac{(4a)c}{(4a)a}+\frac{b^2}{4a^2}$

DAYS 25 & 26: Solving Quadratic Equations by Using the Quadratic Formula

Solving Quadratic Equations by Using the Quadratic Formula Notes

Completing the Square Notes Name:_____

Example 2

Solve by completing the square:

$m^2 + 20m + 73 = 9$

$-73 \quad -73$

$m^2+20m+100=-64+100$

$m^2+20m+100=36$

$\sqrt{(m+10)^2}=\sqrt{36}$

$m+10=\pm 6$

$m+10=6 \quad m+10=-6$

$-10 \quad -10 \quad -10 \quad -10$

$m=-4 \quad m=-16$

Example 3

Solve by completing the square:

$x^2 - 10x - 96 = 0$

$+96 \quad +96$

$x^2-10x+25=96+25$

$x^2-10x+25=121$

$\sqrt{(x-5)^2}=\sqrt{121}$

$x-5=\pm 11$

$x-5=11 \quad x-5=-11$

$+5 \quad +5 \quad +5 \quad +5$

$x=16 \quad x=-6$

Example 4

Solve by completing the square:

$n^2 - 16n + 33 = -6$

$-33 \quad -33$

$n^2-16n+64=-39+64$

$n^2-16n+64=25$

$\sqrt{(n-8)^2}=\sqrt{25}$

$n-8=\pm 5$

$n-8=5 \quad n-8=-5$

$+8 \quad +8 \quad +8 \quad +8$

$n=13 \quad n=3$

Example 5

Solve by completing the square:

$k^2 - 20k + 36 = 0$

$-36 \quad -36$

$K^2-20K+100=-36+100$

$K^2-20K+100=64$

$\sqrt{(K-10)^2}=\sqrt{64}$

$K-10=\pm 8$

$K-10=8 \quad K-10=-8$

$+10 \quad +10 \quad +10 \quad +10$

$K=18 \quad K=2$

AME:

QUADRATIC FORMULA

CUT AND PASTE THE BOXES AND PLACE THEM NEXT TO THE CORRECT PROBLEM.

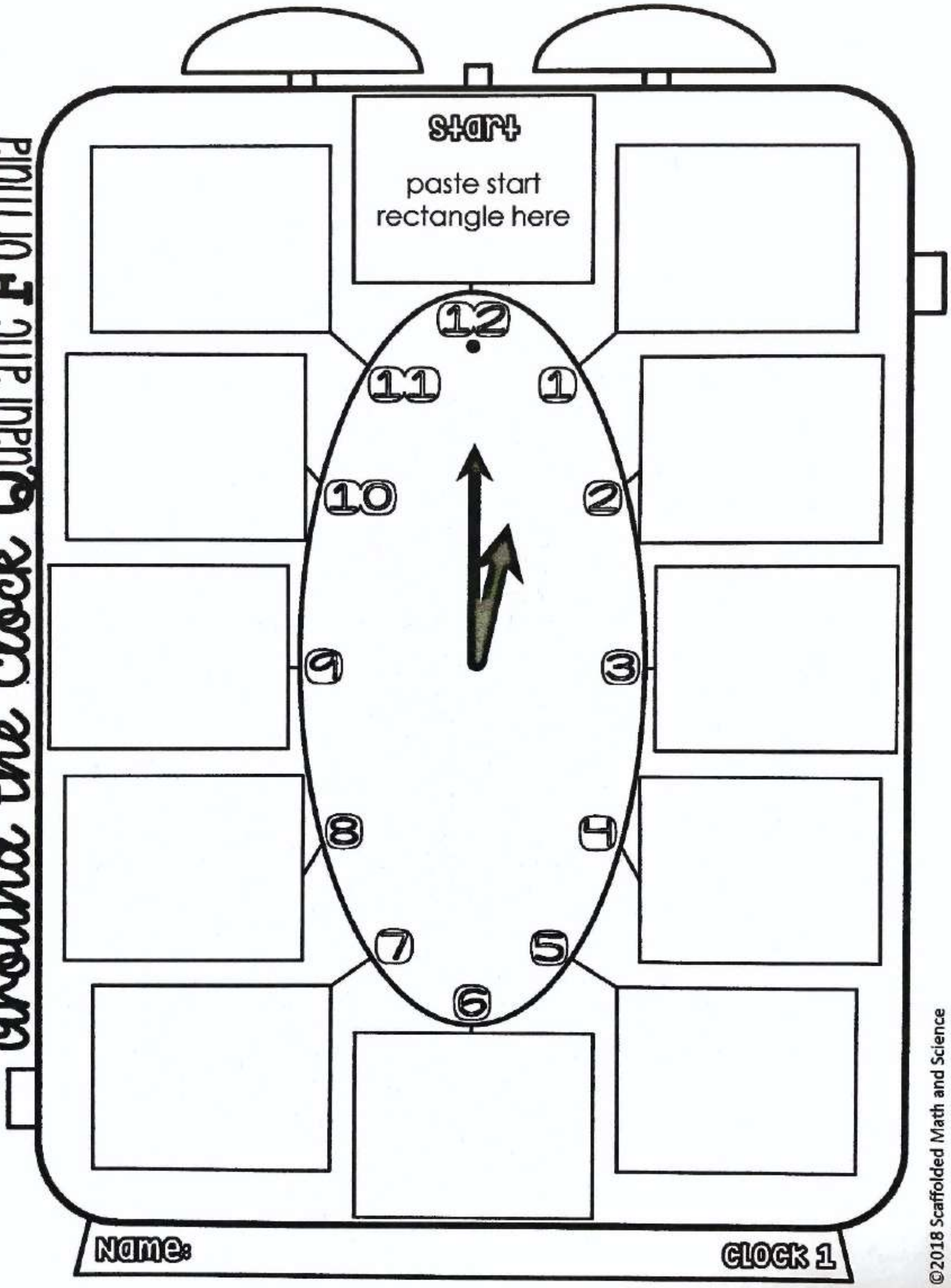
1 $x^2 - 10x + 24 = 0$	PLUG IT IN	ANSWER
2 $3x^2 - 4 = x$	PLUG IT IN	ANSWER
3 $8x^2 + 14x = -3$	PLUG IT IN	ANSWER
4 $x^2 + 4 = 7x - 3$	PLUG IT IN	ANSWER
5 $2x^2 = 3x + 23$	PLUG IT IN	ANSWER

6 $x^2 + 4x - 6 = 0$	PLUG IT IN	ANSWER
7 $x^2 + 7x = 16$	PLUG IT IN	ANSWER
8 $6x^2 + 40 = -31x$	PLUG IT IN	ANSWER
9 $x^2 + 6x = -2$	PLUG IT IN	ANSWER
10 $x^2 - 8x + 5 = 0$	PLUG IT IN	ANSWER

A $x = \frac{-4 \pm \sqrt{(4)^2 - 4(1)(-6)}}{2(1)}$	B $x = \frac{-7 \pm \sqrt{113}}{2}$	C $x = \frac{-31 \pm \sqrt{(31)^2 - 4(6)(40)}}{2(6)}$
D $x = \frac{-5}{2}, \frac{-8}{3}$	E $x = \frac{10 \pm \sqrt{(-10)^2 - 4(1)(24)}}{2(1)}$	F $x = -1, \frac{4}{3}$
G $x = \frac{8 \pm \sqrt{(-8)^2 - 4(1)(5)}}{2(1)}$	H $x = 4, 6$	I $x = 4 \pm \sqrt{11}$
J $x = -3 \pm \sqrt{7}$	K $x = \frac{-7 \pm \sqrt{(7)^2 - 4(1)(-16)}}{2(1)}$	L $x = \frac{7 \pm \sqrt{21}}{2}$
M $x = \frac{7 \pm \sqrt{(-7)^2 - 4(1)(7)}}{2(1)}$	N $x = \frac{3 \pm \sqrt{193}}{4}$	O $x = \frac{1 \pm \sqrt{(-1)^2 - 4(3)(-4)}}{2(3)}$

P $x = -2 \pm \sqrt{10}$	Q $x = \frac{-6 \pm \sqrt{(6)^2 - 4(1)(2)}}{2(1)}$	R $x = \frac{-14 \pm \sqrt{(14)^2 - 4(8)(3)}}{2(8)}$
S $x = \frac{3 \pm \sqrt{(-3)^2 - 4(2)(-23)}}{2(2)}$	T $x = \frac{-1}{4}, \frac{-3}{2}$	

Around the Clock Quadratic Formula



CLOCK 1

start X= 3 X= 3.5 $f(x) = 2x^2 + 6x - 56$	X= 2.25 X= 4 $f(x) = -6x^2 - 3x + 3$	X= -1 X= 4 $f(x) = -2x^2 + 17x + 30$	X= -1 X= 7 $f(x) = 8x^2 + 8x - 6$
X= .5 X= 2 $f(x) = -5x^2 + 44x + 60$	X= -7 X= 4 $f(x) = 6x^2 + 21x + 18$	X= -1.2 X= 5 $f(x) = 6x^2 - 36x - 42$	X= -1.5 X= 10 $f(x) = 10x^2 - 25x + 10$
X= -2 X= -1.5 $f(x) = 5x^2 - 19x - 30$	X= -1.2 X= 10 $f(x) = -4x^2 + 26x - 42$	X= -1.5 X= .5 $f(x) = 12x^2 - 75x + 108$	X= -1 X= .5 $f(x) = -18x^2 + 54x + 72$

CLOCK 2

start X= 3 X= 3.5 $f(x) = 3x^2 + 9x - 84$	X= .5 X= 2 $f(x) = 10x^2 - 88x - 120$	X= -2 X= -1.5 $f(x) = 10x^2 - 38x - 60$	X= -1.5 X= 10 $f(x) = -8x^2 + 20x - 8$
X= -1 X= 7 $f(x) = 12x^2 + 12x - 9$	X= -1 X= .5 $f(x) = -21x^2 + 63x + 84$	X= -1.2 X= 10 $f(x) = -2x^2 + 13x - 21$	X= -1.5 X= .5 $f(x) = 8x^2 - 50x + 72$
X= -7 X= 4 $f(x) = 4x^2 + 14x + 12$	X= -1 X= 4 $f(x) = 6x^2 - 51x - 90$	X= -1.2 X= 5 $f(x) = 4x^2 - 24x - 28$	X= 2.25 X= 4 $f(x) = -4x^2 - 2x + 2$