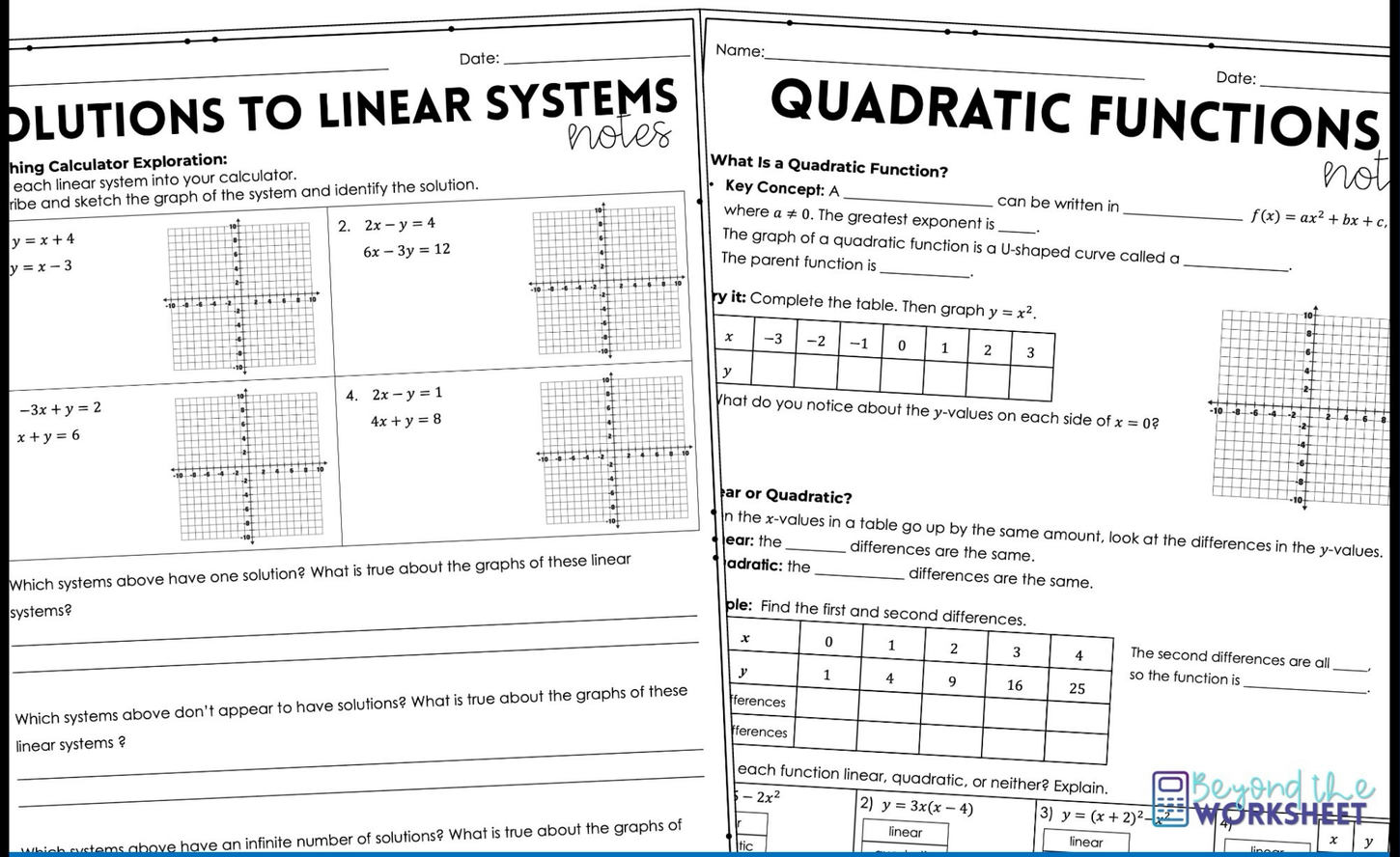
ALGEBRA 1 GUIDED NOTES



Date: _____

OLUTIONS TO LINEAR SYSTEMS notes

hing Calculator Exploration:

each linear system into your calculator.
ribe and sketch the graph of the system and identify the solution.

$y = x + 4$
$y = x - 3$

2. $2x - y = 4$
$6x - 3y = 12$

$-3x + y = 2$
$x + y = 6$

4. $2x - y = 1$
$4x + y = 8$

Which systems above have one solution? What is true about the graphs of these linear systems?

Which systems above don't appear to have solutions? What is true about the graphs of these linear systems ?

Which systems above have an infinite number of solutions? What is true about the graphs of

Name: _____ Date: _____

QUADRATIC FUNCTIONS not

What Is a Quadratic Function?

- **Key Concept:** A _____ can be written in _____ $f(x) = ax^2 + bx + c$, where $a \neq 0$. The greatest exponent is ____.
- The graph of a quadratic function is a U-shaped curve called a _____.
- The parent function is _____.

y it: Complete the table. Then graph $y = x^2$.

x	-3	-2	-1	0	1	2	3
y							

What do you notice about the y-values on each side of $x = 0$?

ar or Quadratic?

n the x-values in a table go up by the same amount, look at the differences in the y-values.
ear: the _____ differences are the same.
adratic: the _____ differences are the same.

ple: Find the first and second differences.

x	0	1	2	3	4
y	1	4	9	16	25
fferences					
fferences					

The second differences are all ____, so the function is _____.

each function linear, quadratic, or neither? Explain.

$5 - 2x^2$
r
tic

2) $y = 3x(x - 4)$
linear

3) $y = (x + 2)^2 - x^2$
linear

4)
linear

x	y

Beyond the WORKSHEET

A FULL YEAR OF SCAFFOLDED NOTES

Enhance your high school Geometry instruction with this complete set of **guided notes**! This resource includes detailed, easy-to-follow notes that cover all high school Geometry standards.

learn more!

53 LESSONS ACROSS 9 UNITS

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STRUCTURED AND SCAFFOLDED

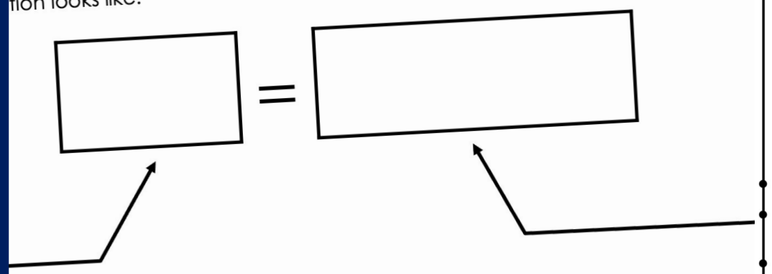
Date: _____

LUATING FUNCTIONS NOTE

ion Notation:

ion is _____

tion looks like:



tation sounds like: _____

Functions:

Evaluate each function if $x = 4$.

$x^2 + 3$	2. $g(x) = 4x - 5$

For #3 & 4: Evaluate each function

3. $r(x) = (x)^3+2$	4. $p(x) = \frac{x}{6}$

: A gym charges a $15 signup fee and $20 per month.
esented by the function $c(m) = 20m + 15$.

oes $c(3)$ mean? Find $c(3)$.

6. What does $c(6)$ mean? Find $c(6)$.

Name: _____ Date: _____

SOLVING SYSTEMS BY GRAPHIN(

not

Vocabulary:

Rate of Change	
Slope	

Steps:
To use the graphing method to solve a system of linear equations, follow these steps:

Step 1 _____

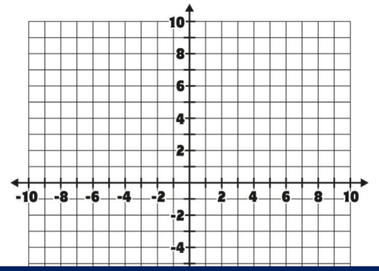
Step 2 _____

Step 3 _____

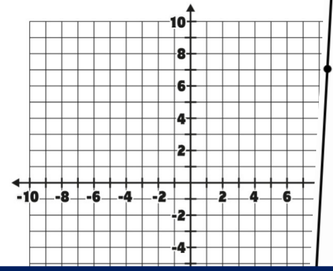
Step 4 _____

Try it:
Use the graphs to identify the solutions to each linear system. Check your solution algebra

1. $y = -3x - 5$
   $y = x - 9$



2. $x = -8$
   $y = -\frac{7}{8}x - 3$



Name: _____ Date: _____

SYSTEMS OF LINEAR INEQUA

Vocabulary:

Two-Variable Inequality	

Solve Systems of Inequalities by Graphing:
To use the graphing method to solve a system of inequalities, follow these steps:

Step 1 _____

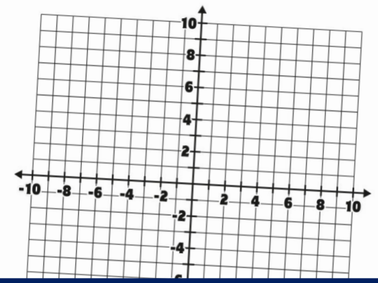
Step 2 _____

Step 3 _____

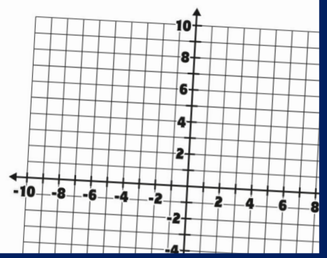
Step 4 _____

Try it:
Use the graphs to identify the solutions to each linear system. Check your solution alge

1. $y \geq -\frac{10}{3}x - 6$
   $y \leq \frac{1}{3}x + 5$



2. $3x + 2y < 14$
   $x - 3y \leq 12$



COMPLETE ANSWER KEYS

Name:_____ Date: _____

FACTORING POLYNOMIALS *notes*

What Is Factoring?

- Factoring is the _____ of multiplying.
- You write a polynomial as a _____ of its factors.
  - Multiplying: $3x(x+4) = 3x^2 + 12x$ Factoring: $3x^2 + 12x = 3x(x+4)$
- **Always check** a factored answer by multiplying it back out.

Always Look for a GCF First

Key Concept:

- The greatest common factor (GCF) is the largest monomial that _____ every term.
  - Example: $8x^3 - 12x^2 + 4x = 4x(2x^2 - 3x + 1)$ (The last term leaves a 1 behind, not a 0.)

Try it: Factor out the GCF.

1) $6a^2 + 20a$	2) $15m^3n - 10m^2n^2 + 5mn$	3) $7x(x-2) + 3(x-2)$

Factoring $x^2 + bx + c$

- Find two numbers p and q whose _____ is c and whose _____ is b.
  Then $x^2 + bx + c = (x+p)(x+q)$.
- Example: Factor $x^2 + 10x + 16$.

Factors of 16	Sum
1 and 16	17
2 and 8	**10** ✓
4 and 4	8

Check: $x^2 + 10x + 16 = (x+2)(x+8)$
$(x+2)(x+8) = x^2 + 8x + 2x + 16$
$x^2 + 10x + 16$ ✓

Try it: Factor each trinomial. Check by multiplying.

4) $x^2 + 7x + 12$	5) $x^2 + 9x + 20$	6) $x^2 + 13x + 36$

Name: Answer Key Date: _____

FACTORING POLYNOMIALS *notes*

What Is Factoring?

- Factoring is the reverse of multiplying.
- You write a polynomial as a product of its factors.
  - Multiplying: $3x(x+4) = 3x^2 + 12x$ Factoring: $3x^2 + 12x = 3x(x+4)$
- **Always check** a factored answer by multiplying it back out.

Always Look for a GCF First

Key Concept:

- The greatest common factor (GCF) is the largest monomial that divides into every term.
  - Example: $8x^3 - 12x^2 + 4x = 4x(2x^2 - 3x + 1)$ (The last term leaves a 1 behind, not a 0.)

Try it: Factor out the GCF.

1) $6a^2 + 20a$	2) $15m^3n - 10m^2n^2 + 5mn$	3) $7x(x-2) + 3(x-2)$
$2a(3a+10)$	$5mn(3m^2 - 2mn + 1)$	$(x-2)(7x+3)$

Factoring $x^2 + bx + c$

- Find two numbers p and q whose product is c and whose sum is b.
  Then $x^2 + bx + c = (x+p)(x+q)$.
- Example: Factor $x^2 + 10x + 16$.

Factors of 16	Sum
1 and 16	17
2 and 8	**10** ✓
4 and 4	8

Check: $x^2 + 10x + 16 = (x+2)(x+8)$
$(x+2)(x+8) = x^2 + 8x + 2x + 16$
$x^2 + 10x + 16$ ✓

Try it: Factor each trinomial. Check by multiplying.

4) $x^2 + 7x + 12$	5) $x^2 + 9x + 20$	6) $x^2 + 13x + 36$
$(x+3)(x+4)$	$(x+4)(x+5)$	$(x+4)(x+9)$

EDITABLE NOTES FIT ALL SCHOOLS

Date: _____

PHING LINEAR INEQUALITI

no

symbol is < or >, the line will be _____.

symbol is ≤ or ≥, the line will be _____.

e point you picked is a _____, shade that side of the bou

If it is not a solution, shade the _____ side.

ading:

The Line		Shading	
	Dashed	Shaded Above	Shaded Belov

ractice: Graph each inequality. Test an ordered pair to check your ans

1

2) $3x - 3y < 0$

Name: _____ Date: _____

FORMS OF QUADRATICS

not

The Three Forms of a Quadratic Function

Form	Equation	What you can see quickly
Standard	$y = ax^2 + bx + c$	
Vertex	$y = a(x-h)^2+k$	
Factored (intercept)	$y = a(x-p)(x-q)$	

In every form:

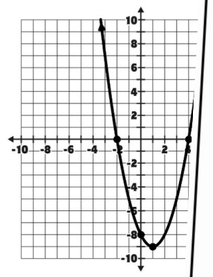
- a tells the direction and width.
  - $a > 0$: opens up
  - $a < 0$: opens down
  - $|a| > 1$: narrower than $y = x^2$.
  - $0 < |a| < 1$: wider.

Example: These three equations describe the same parabola.

Standard: $y = x^2 - 2x - 8$ → y-intercept _____

Vertex: $y = (x-1)^2-9$ → vertex _____

Factored: $y = (x-4)(x+2)$ → zeros _____ and _____



Try it: Name the form. Then find the feature you can see from that form.

1) $y = -2(x-3)^2+5$	2) $y = 4(x+1)(x-6)$	3) $y = 3x^2 - 12x + 7$

Name: _____ Date: _____

SOLVING EQUATIONS WITH VARIABLES ON BO

Goals:

1. Use _____ operations to get the _____ tog side of the equation and the constants together on the other side.
2. Solve.

Steps:

There can be *many* steps involved when solving equations with variables on both side

1. Eliminate any _____ on either side of the equation by using th property.
2. _____ any like terms on either side of the equation.
3. Use _____ operations to move the variable to one side of the
4. Use inverse operations to move the _____ to the other side of
5. You should be left with a one-step equation, so _____!
6. _____. Substitute your answer back into the original equation

Try it:

1) $10 - 6x + x = -x - 6x$

2) $-3 + 4k = -11 + 5k$

3) $-(a-5) + (-a) = -2 - 3a$

4) $-7n + 7(1+n) = -5 + 6n$