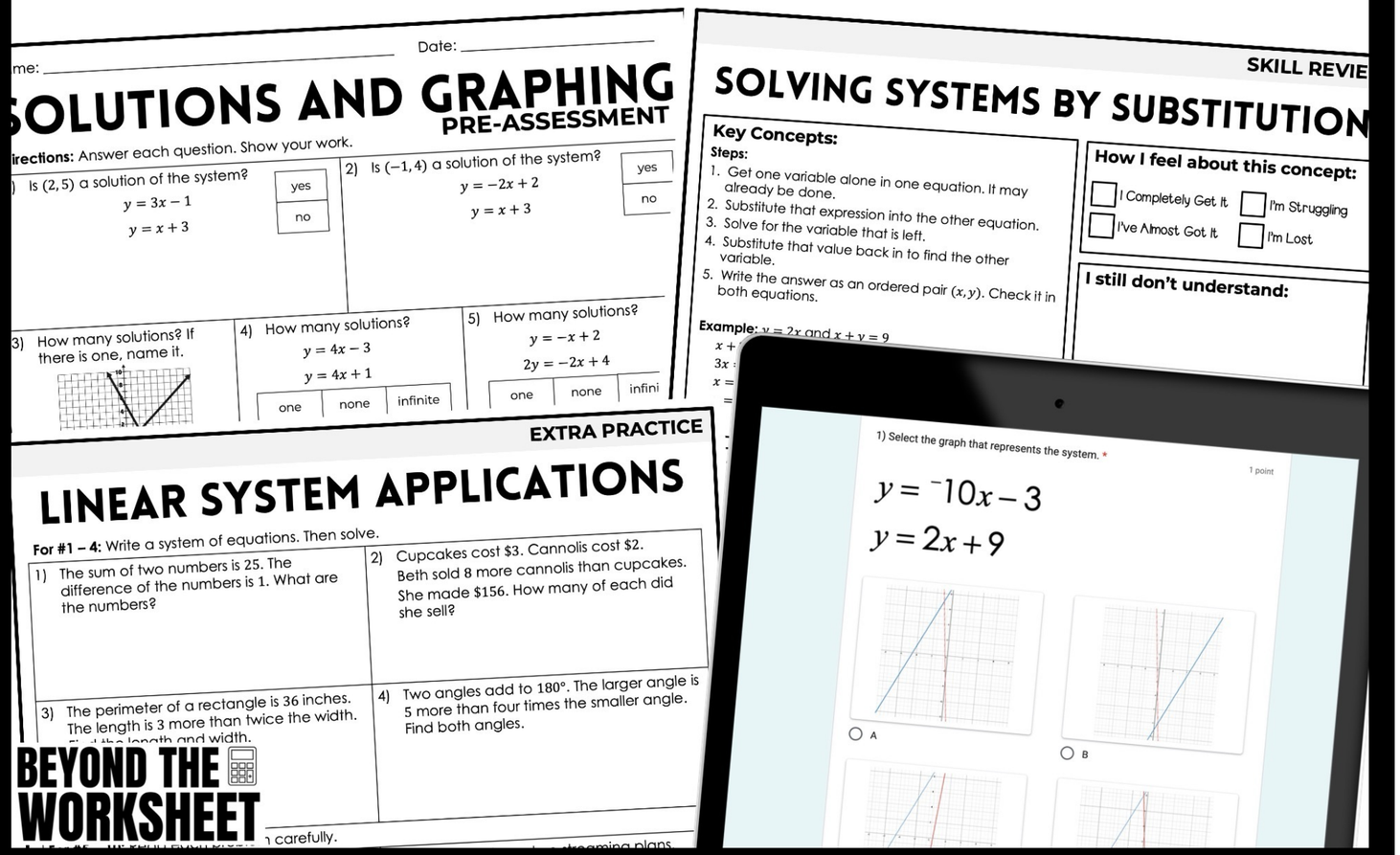
8TH GRADE MATH INTERVENTION UNIT

LINEAR SYSTEMS OF EQUATIONS



BEYOND THE WORKSHEET

PRE + POST ASSESSMENTS • 6 TARGETED SKILLS • ERROR ANALYSIS

This 8th grade math intervention unit gives you two pre-assessments that pinpoint each student's gaps, and short, focused pages to reteach only the skills they missed. It covers solving systems of equations by graphing, substitution, and elimination.

learn more!

WHAT'S INCLUDED:

- **Intervention Planning Sheets**
  Three planning formats are included to help organize intervention groups, targeted skills, and instructional plans.
- **Pre and Post Assessments**
  Use the pre-assessment to identify individual skill gaps and the post-assessment to measure growth after intervention. In print and Google Forms.
- **Skill Review**
  A concise review of the skill with key concepts, guided practice, and a student self-assessment.
- **Extra Practice**
  Additional problems for independent, pairs or small group practice.
- **Error Analysis**
  Students analyze incorrect work, identify the mistake, and determine the correct solution.
- **Progress Tracking**
  Record student performance across the Skill Review, Extra Practice, and Error Analysis pages.
- **Editable Version**
  Adjust wording and problems to perfectly meet your standards or student needs.

Resource	Pages
Resource Details	2 – 4
Intervention Plan Sheets	5 – 7
Tracking Sheets for Assessments	8, 23
Solutions and Graphing Pre-Assessment	9
Checking Solutions	10 – 13
Number of Solutions	14 – 17
Solving by Graphing	18 – 21
Solutions and Graphing Post-Assessment	22
Solving Algebraically Pre-Assessment	24
Solving by Substitution	25 – 28
Solving by Elimination	29 – 32
Linear System Applications	33 – 36
Solving Algebraically Post-Assessment	37

PRE & POST ASSESSMENTS

Date: ______________

TIONS AND GRAPHING

PRE-ASSESSMENT

ach question. Show your work.

of the system? yes / no

$= 3x - 1$

$= x + 3$

2) Is $(-1, 4)$ a solution of the system? yes / no

$y = -2x + 2$

$y = x + 3$

tions? If me it.

infinite

4) How many solutions?

$y = 4x - 3$

$y = 4x + 1$

one	none	infinite

Explain:

5) How many solutions?

$y = -x + 2$

$2y = -2x + 4$

one	none	infinite

Explain:

hing.

$= -x + 3$

7) Solve by graphing.

$y = 2x - 2$ $\quad y = -\frac{1}{2}x + 3$

Name: ______________________ Date: ______________

SOLVING SYSTEMS ALGEBRAICALLY

ASSESSMENT

Directions: Answer each question. Show your work.

1) Solve using substitution.
$$y = 3x$$
$$x + y = 16$$

2) Solve using substitution.
$$y = x - 2$$
$$2x + y = 13$$

3) Solve using elimination.
$$x + y = 11$$
$$x - y = 5$$

4) Solve using elimination.
$$3x + 2y = 7$$
$$-3x + y = -1$$

Solve using any method.
$$y = 2x + 1$$
$$3x + y = 16$$

6) Solve using any method.
$$x + 2y = 8$$
$$2x + y = 7$$

Roni sold 14 pecan pies and 12 cherry pies for \$380. She sold 9 pecan pies and 11 cherry pies for \$310. Find the cost of one pecan pie and one cherry pie.

8) Studio A charges \$60 to sign up plus \$40 per month. Studio B charges \$30 plus \$50 per month.
Write a system. After how many months do they cost the same?

PRE AND POST ASSESS

TIONS AND GRA

	Pre-Assessment	Post-Assessment	N

SKILLS REVIEW PAGES

SKILL REVIEW

CKING SOLUTIONS

How I feel about this concept:

☐ I Completely Get It ☐ I'm Struggling
☐ I've Almost Got It ☐ I'm Lost

I still don't understand:

ns: two equations with the same

ed pair (x, y) that makes **both**

alue and the y-value into the first

e second equation and simplify.
he point is a solution. If either one is

solution of $y = 2x + 1$ & $y = -x + 7$?
$5 = -(2) + 7$ true
true, so (2,5) is a solution.

ution of the system?
$y = 2x + 1$
$y = x + 2$

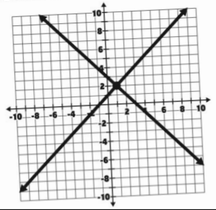
yes	no

ered pair is a solution of
nd $y = -2x + 7$?
B) $(2, 3)$
D) $(0, 1)$

2) Is $(4, -1)$ a solution of the system?
$x + y = 3$
$2x - y = 7$

yes	no

4) Use the graph of $y = x + 1$ and $y = -x + 3$. Name the solution. Check it in both equations.



SKILL REVIEW

NUMBER OF SOLUTIONS

Key Concepts:

A system of two lines can have:

One solution	No solution	Infinitely many
The lines cross.	The lines are parallel.	The lines are the same line.
Different slopes	Same slope, different y-intercepts	Same slope, same y-intercept

Tip: Write both equations in $y = mx + b$ form first. Then compare m and b.

Example: $y = 2x + 3$ and $y = 2x - 1$ have the same slope and different y-intercepts.
The lines are parallel, so there is **no solution**.

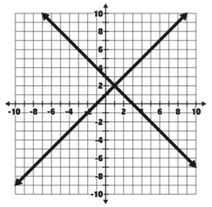
How I feel about this concept:

☐ I Completely Get It ☐ I'm Struggling
☐ I've Almost Got It ☐ I'm Lost

I still don't understand:

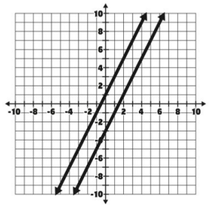
Practice:

1) How many solutions?



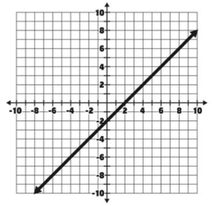
one	none	infinite

2) How many solutions?



one	none	infinite

3) How many solutions?



one	none	infinite

$y = 3x + 2$
$y = 3x - 5$

one	none	infinite

Explain:

5) $y = -x + 4$
$y = 2x + 4$

one	none	infinite

Explain:

6) Fill in the blank so the system has infinitely many solutions.
$y = 4x + 1$

NG SYSTEMS BY GRA

How I feel abou

☐ I Completely Get It
☐ I've Almost Got It

I still don't unde

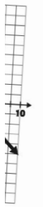
ation in $y = mx + b$ form.
e. Start at b on the y-axis. Then

d line on the same grid.
ere the lines cross. That point is

n both equations.

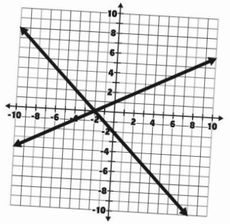
nd $y = -x + 5$ cross at (2,3).
rue $3 = -2 + 5$ true

). + 5

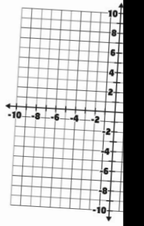


3

2) Name the solution.
$y = \frac{1}{2}x + 1$ $y = -x - 2$



3) Solve by gr
$y = x + 2$ y



5) Rewrite $x + y = 4$ in slope-intercept form.

6) What is the s
Explain.

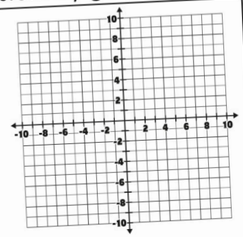


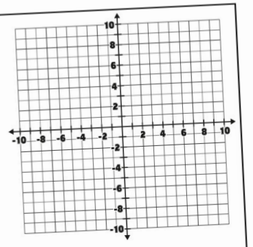
EXTRA PRACTICE

G SYSTEMS BY GRAPHING

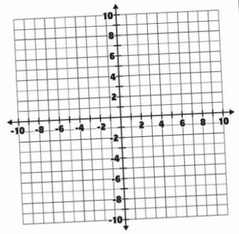
ch system by graphing. Check your answer.

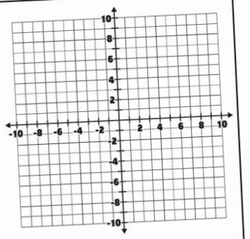
2) $y = 2x - 4$
$y = -x + 2$





4) $x + y = 5$
$y = x - 1$

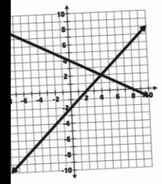




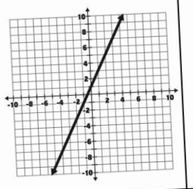
d each problem carefully.

tion. Check it
ations.

$y = x - 2$

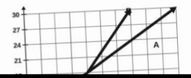


6) $y = 2x + 1$ and $4x - 2y = -2$ make the graph below. How many solutions?



7) Maria graphed $y = 3x - 2$. She started at $(-2, 0)$. What did she do wrong?

shows two phone plans. When st the same? What is the cost?



9) Without graphing, check if $(1, 4)$ is the solution of $y = x + 3$ and $y = 2x + 2$.

SOLVING SYSTEMS BY SUBSTITUTION

For #1 – 4: Solve each system using substitution. Check your answer.

1) $y = 4x$
$x + y = 10$

2) $y = x - 3$
$2x + y = 9$

3) $x = y + 5$
$3x - 2y = 17$

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

or #5 – 10: Read each problem carefully.

) Fill in the blank to show the substitution. Then solve.

$y = 2x + 1$ $\quad 4x - y = 5$

$4x - (\_\_\_\_\_) = 5$

6) Ben solved $y = x + 2$ and $3x + y = 10$. He found $x = 2$ and said he was done. What is he missing? Finish the problem.

Both equations are solved for y. Set them equal and solve.

$y = -2x$ $\quad y = x - 6$

8) Solve. How many solutions are there?

$y = 3x + 1$ $\quad y = 3x - 2$

The sum of two numbers is 20. One number s 4 more than the other. Use $x + y = 20$ and $= x + 4$ to find the numbers.

10) What would be the first step you take to solve the system? Explain.

$2x + 5y = 9$ $\quad x - 3y = -1$

E

G SYSTEMS BY ELIMI

ch system using elimination. Check your answer.

2) $3x + y = 10$
$-3x + 2y = 2$

3) $2x + 3y = 9$
$x - 3y = 0$

4)

ch problem carefully.

quation by _____ to solve.
$y = 12$

6) Dani added $2x + y = 8$ a got $3x + 2y = 13$. What m make? Solve the system t

e $4x$. How can you

$4x - 3y = -1$

8) Solve. What happens? Hov solutions?

$x + y = 4$ $\quad x +$

k cost \$11. 2 hot dogs se $3h + d = 11$ and cost of each.

10) Would you use substitution o Explain and solve.

ERROR ANALYSIS

R SYSTEM APPLICATIONS

the error. Then explain it and solve the problem correctly.

50 on 3 drinks and 9
es spent $135 on 12 drinks
ers. Find the cost of one
appetizer.

r: $3d + 9a = 85.50$
$+ 13a = 135$
. An appetizer costs $1.50.

2) The difference of two numbers is 1. Their sum is 15. Find the numbers.

Student answer: $x + y = 15$
$x - y = 1$
$2x = 14$
$x = 7$
$y = 8$

3 hot dogs and 3 burgers for
bought 4 hot dogs and 2
0. Write the system.

er: $3h + 3c = 11.25$
$+ 2c = 11.25$

4) 3 bagels and 2 coffees cost $7. 2 bagels and 4 coffees cost $8. Find the cost of each.

Student answer: $-6b - 4c = -14$
$2b + 4c = 8$
$-4b = -6$
$b = -1.5$

ges $20 plus $5 per visit. Gym B
per visit. Write the system.

wer: $y = 20x + 5$
$y = 10x$

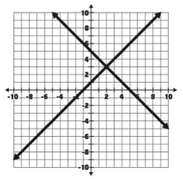
6) A farm has 10 chickens and cows. There are 28 legs in all. How many of each?

Student answer: $c + w = 10$
$c + w = 28$
No solution.

SOLVING SYSTEMS BY GRAPHING

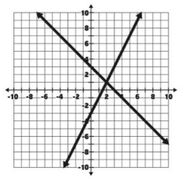
Directions: Identify the error. Then explain it and solve the problem correctly.

1) Solve by graphing.
$y = x + 1$ $y = -x + 5$



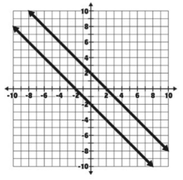
Student answer: Solution: (3,2)

2) Solve by graphing.
$y = 2x - 3$ $y = -x + 3$



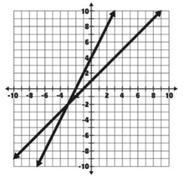
Student answer: Solution: (0,3) because that is where the line starts.

) Solve by graphing.
$y = -x + 2$ $y = -x - 2$



Student answer: Infinitely many solutions because the lines go the same direction.

4) Solve by graphing.
$y = -2x + 4$ $y = x + 1$

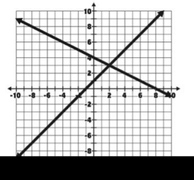


Student answer: Solution: $(-3, -2)$

Solve by graphing.
$x + y = 6$ $y = x + 2$

Student answer: $y = x + 6$
$y = x + 2$
The lines are parallel, so there is no solution.

6) Solve by graphing.
$y = -\frac{1}{2}x + 4$ $y = x + 1$



E

BER OF SOLUT

the error. Then explain it and solve the problem correctly

tions?
$= 4x + 2$
$= 4x - 2$

One solution because
be of 4.

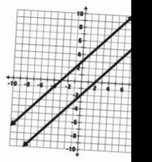
2) How many solutions?
$y = x + 5$
$y = -x + 5$

Student answer: No solu
y-intercepts are the sam

ns?
$x + 1$
$5x + 2$

lo solution because the
erent.

4) How many solutions?



Student answer: One solut

?
$+ 6$
$= 1$

$+ y = 1$
$- 1$
e the slopes are

6) How many solutions?
$y = 5$
$y = -3$

Student answer: One solutio
lines have different y-interce

TEACHER PAGES & ANSWER KEY

EXTRA PRACTICE

CKING SOLUTIONS

ther the ordered pair is a solution of the system. Show your check.

yes / no	2) $(-1, 2)$ $y = -3x - 1$ $y = x + 4$ — yes / no; $2 = -3(-1) - 1$, $2 \neq -1 + 4$	3) $(2, -3)$ $x + y = -1$ $3x + y = 3$ — yes / no; $2 + (-3) = -1$, $3(2) + (-3) = 3$	4) $(5, 0)$ $2x - y = 10$ $x + 3y = 8$ — yes / no; $2(5) - 0 = 10$, $5 + 3(0) \neq 8$

each problem carefully.

a solution of $y = 2x$ and

B) $(3, 6)$

D) $(9, 0)$

6) Fill in the blank so $(1, 5)$ is a solution.

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

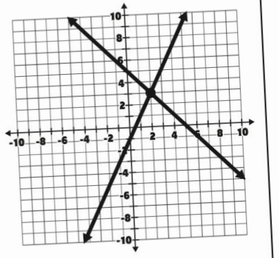
Check: $5 = -1 + 6$

2,3) is a solution of $y = x + 1$
2 because $3 = 2 + 1$. What
t? Is he correct?

cked only one equation.
$3 = 2(2) - 2$
$3 \neq 2$
o, it is not a solution.

8) Use the graph of $y = 2x - 1$ and $y = -x + 5$.
Name the solution. Check it in both equations.

$(2, 3)$
$3 = 2(2) - 1$
$3 = -2 + 5$



10 tickets for $38. Adult tickets
student tickets cost $3. The

10) A point that makes only one of the equations true is a solution of the system.

8TH GRADE MATH INTERVENTION PROGRAM

Resource: 8th Grade Math Intervention Unit 4 – Linear Systems of Equations

Suggested Class Time: 30 minutes at a time as needed

The Big Idea

- This unit provides **targeted intervention and additional practice** with checking solutions, the number of solutions, and solving systems of linear equations by graphing, substitution, and elimination, then using systems to solve real-world problems. The unit is split into two sections (Solutions and Graphing, and Solving Algebraically), each with its own pre- and post-assessment. Each skill review also revisits the earlier skills students need, such as substituting values, graphing lines, and solving equations.
- Use the pre-assessment to identify specific skill gaps, then assign only the skill pages students need. The materials work best in **teacher-led small groups**, but the Extra Practice and Error Analysis pages can also be used for independent practice, partner work, reteaching, or progress monitoring.

Each skill comes with:

- **Skill Review**
  A concise review of the skill with key concepts, guided practice, and a student self-assessment.
- **Extra Practice**
  Additional problems students can complete independently, with a partner, or as continued small-group practice.
  Error Analysis
  Students analyze incorrect work, identify the mistake, and determine the correct solution. This provides an opportunity to uncover misconceptions that may not be obvious from a correct/incorrect answer alone.
  Progress Tracking
  Record student performance across the Skill Review, Extra Practice, and Error Analysis pages to monitor growth and determine next steps.

lso included:

Pre- & Post-Assessments
Use the pre-assessment to identify individual skill gaps and the post-assessment to measure growth after intervention. Print and Google Forms versions are included.
Intervention Planning Sheets
Three planning formats are included to help organize intervention groups, targeted skills, and instructional plans. These can also be used to communicate plans with interventionists, assistants, or other support staff.

GGESTED INTERVENTION FLOW
Assess → 2. Identify Skill Gaps → 3. Review & Reteach → 4. Practice → 5. Analyze Errors → 6. Reassess

ndards (CCSS)
.EE.8a, 8.EE.8b, 8.EE.8c
Gap skills reviewed: 6.EE.2c, 7.EE.4a, 8.EE.7, 8.F.3

Progression

equisite Skills	Skills Addressed in This Unit	Skills Students Will Build Toward
olving equations	• Checking solutions	• Patterns in bivariate data

8TH GRADE MATH INTERVE

eptions & Teaching Tips

NS
ts checking only one equation, or putting the y-value in for x.
must make both equations true. Label x and y over the ordere

NS
s thinking different slopes mean no solution.
: parallel or the same line. Different slopes: the lines always cr

G
starting at b on the x-axis, or graphing the slope in the wrong
) on the y-axis. Say "down" for a negative slope before count

ON
dropping parentheses, or stopping after finding one variable.
he substituted expression in parentheses. The answer is an orde

ON
ultiplying only one side of an equation, or adding when nothi
term. Check that one variable has opposite numbers before

IONS
itching the starting fee and the rate, or using the same total t
opens once? What happens each time?" Write one equation