Tuesday Jan 14 Activator
What is the solution (or point) if \( x = -3 \) when \( f(x) = 4x - 5 \)?

\[
\begin{align*}
\text{f(x) = y} & \quad \text{f(-3) = 4(-3) - 5} \\
& \quad \text{f(-3) = -12 - 5} \\
& \quad \text{f(-3) = -17} \\
& \quad (-3, -17)
\end{align*}
\]

Today’s New Vocab (1 of 4)
Define solution: It is the answer to an Algebra question. An example could be: a point \((x, y)\)
Is the point \((2, -7)\) on the line \(f(x) = -5x + 3\)?

\[
\begin{align*}
-7 &= -5(2) + 3 \\
&= -10 + 3
\end{align*}
\]
The last equation is true. \(-7 = -7\)
So, the point is on the line.

Today’s New Vocab (2 of 4)
Is the point \((1, -2)\) on the line \(f(x) = -5x + 3\)?

<table>
<thead>
<tr>
<th>(x)</th>
<th>(f(x))</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>-2</td>
</tr>
<tr>
<td>2</td>
<td>-7</td>
</tr>
</tbody>
</table>

Write one solution \((0, 3)\)
Write one Non-solution \((2, 4)\)

Today’s New Vocab (3 of 4)
What is the solution of the two equations?
If there are two lines, the solution is where the lines intersect.

\((4, 2)\) is the solution.
Today (4 of 4)
What is the solution to the system of equations?
Explain using words.
(3, 8) In both Cabs, 3 miles costs $8.
Which cab is cheaper for 9 miles? Blue Cab

Tuesday Jan 14 Work Period
Which set of coordinates (-6, -2) or (3, -4) is a solution of the equation
\[
2x - y = 10
\]
\[
2(-6) - (-2) = 10
\]
\[
2(3) - (-4) = 10
\]
\[
-12 + 2 = 10
\]
\[
10 = 10
\]
Yes, it is a solution
No, it is NOT a solution
The point (3,-4) is on the line.

Tuesday Jan 14 Exit Ticket
Determine if the ordered pair (4, -3) is a solution of \( y - 5x = 23 \).
\[
(-3) - 5(4) = 23
\]
\[
-3 - 20 = 23
\]
\[
-23 = 23
\]
No, \(-23 \neq 23\). So, the point is NOT a solution. Therefore, it is also NOT on the line.

Today’s Objective
Students will be able to identify and write solutions.
**Thursday Jan 16 Activator**

What is the x-value of the intersection if \( y = -3 \) when \( y = 4x + 5 \)?

Is the point \((-2, -3)\) on both tables? Yes

Why, it is on both lines.

<table>
<thead>
<tr>
<th>x</th>
<th>y</th>
<th>( -8 = 4x )</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2</td>
<td>-3</td>
<td>( \div 4 = \frac{4}{x} )</td>
</tr>
</tbody>
</table>

\( -2 = x \)

**Today’s New Vocab (1 of 4)**

What is the solution to the system of equations?

\[
Y = 8x + 30 \quad \text{and} \quad x = -2
\]

\[
Y = 8(-2) + 30
\]

\[
Y = -16 + 30
\]

\[
Y = 14
\]

The solution is the point of intersection of the two lines.

\( (x, y) \)

\( ( -2, 14 ) \)

**Today’s New Vocab (2 of 4)**

Is the point \((-2, 14)\) on the line \( y = 8x + 30 \)?

Is the point \((-2, 14)\) on the line \( x = -2 \)?

\[
(14) = 8(-2) + 30
\]

\[
14 = -16 + 30
\]

\[
14 = 14
\]

Both of the last equations are TRUE.

So, the point \((-2, 14)\) is a solution to the system.

**Today’s New Vocab (3 of 4)**

What is the x-value of the system of equations?

\[
Y = -6x \quad \text{and} \quad y = 2x + 24
\]

The x-value of the point of intersection of the two lines is...

\[
-6x = 2x + 24
\]

\[
-8x = 24
\]

\[
x = \frac{-3}{-8} = \frac{3}{8}
\]

\( x = -3 \)
Today's New Vocab (4 of 4)
What is the solution to the system of equations?
\[ x = -3 \quad y = -6x \quad \text{and} \quad y = 2x + 24 \]
from #3 \[ y = -6(-3) \quad y = 2(-3) + 24 \]
\[ y = 18 \quad y = -6 + 24 \]
The solution is the point of intersection of the two lines. \((x, y) = (3, 18)\)

Thursday Jan 16 Work Period
What is the value of d in the systems of equations?
\[ c + 3d = 8 \quad \text{and} \quad c = 4d - 6? \]
\[ (4d - 6) + 3d = 8 \]
\[ 4d - 6 + 3d = 8 \]
\[ 7d - 6 = 8 \]
\[ 7d = 14 \]
\[ d = 2 \]

Thursday Jan 16 Exit Ticket
What is the solution to the system of equations?
\[ d = 2 \quad c + 3d = 8 \quad \text{and} \quad c = 4d - 6? \]
from the work period \[ c + 3(2) = 8 \quad c = 4(2) - 6 \]
\[ c + 6 = 8 \quad c = 8 - 6 \]
The solution is the point of intersection of the two lines. \((c, 2) (2, 2)\)

Today's Objective
Unit 5 Lesson 2
Students will be able to use substitution to compute the solution (intersection/answer).
**Monday Jan 27 Activator**
Graph the function. $f(x) = -4x + 6$

Is it linear? Yes, it makes a straight line. It has no exponent.

<table>
<thead>
<tr>
<th>$x$</th>
<th>$f(x)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>-2</td>
</tr>
<tr>
<td>3</td>
<td>-6</td>
</tr>
</tbody>
</table>

**Today's New Vocab (1 of 4)**
How do I enter the $2^{nd}$ function (equation) on the graph?

$f(x) = -4x + 6$
$f(x) = 8x - 6$

Press TAB to Enter the $2^{nd}$ function (equation)

Which point is on both tables?

<table>
<thead>
<tr>
<th>$x$</th>
<th>$f(x)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

**Today's New Vocab (2 of 4)**
Sometimes, the "y" is not by itself.
So, you can use the Elimination method.
Combine the two equations into 1 equation.

$8x + 2y = 12$  
$-8x + y = -6$  
$+ 3y = 6$  
$\div 3$  
$y = 2$

**Today's New Vocab (3 of 4)**
Where does the two lines intersect?

$8x + 2y = 12$  
$-8x + y = -6$  

$8x + 4 = 12$  
$-4 = -4$  
$8x = 8$  
$\div 8$  
$x = 1$

Substitute $y$ to solve for $x$

$y = 2$

The Solution

$(1, 2)$
**Today's New Vocab (4 of 4)**

CHECK. Is $(1, 2)$ on both lines?

\[
\begin{align*}
8x + 2y &= 12 \\
8(1) + 2(2) &= 12 \\
8 + 4 &= 12 \\
12 &= 12
\end{align*}
\]

\[
\begin{align*}
-8x + y &= -6 \\
-8(1) + (2) &= -6 \\
-8 + 2 &= -6 \\
-6 &= -6
\end{align*}
\]

The last equation in both problems is TRUE.

So, the point $(1, 2)$ is on both lines and is at the intersection of both lines.

---

**Monday Jan 27 Work Period**

What is the $x$-value of the intercept (solution)?

\[
\begin{align*}
3x - y &= 12 \\
2x + y &= 13
\end{align*}
\]

Elimination Method

\[
\begin{align*}
2x + y &= 13 \\
5x + 0y &= 25
\end{align*}
\]

Eliminate $y$ by combining the two equations

\[
\begin{align*}
2x + y &= 13 \\
5x &= 25
\end{align*}
\]

\[
\begin{align*}
\div 5 &\quad \div 5
\end{align*}
\]

into one equation.

\[
\begin{align*}
x &= 5
\end{align*}
\]

---

**Monday Jan 27 Exit Ticket**

Where do the two lines intersect?

\[
\begin{align*}
3x - y &= 12 \\
3(5) - y &= 12 \quad 2(5) + y &= 13 \\
15 - y &= 12 \quad 10 + y &= 13 \\
-15 &\quad -15 \quad -10 &\quad -10
\end{align*}
\]

\[
\begin{align*}
- y &= -3 \quad y &= 3 \\
\div -1 &\quad \div -1 \\
y &= 3
\end{align*}
\]

The Solution is $(5, 3)$

---

**Today's Objective**

Students will be able to solve two equations algebraically using the elimination method.
**Wednesday Jan 29 Activator**

Does (-1, 6) lie in the solution set of ...

\[ f(x) \geq -2x + 3 \]

\[
\begin{align*}
(6) & \geq -2(-1) + 3 \\
6 & \geq +2 + 3 \\
6 & \geq 5
\end{align*}
\]

Yes, (-1, 6) is in the solution set.

What does this look like?

**Today's New Vocab (1 of 4)**

Determine if the point (1, -3) is a solution to the system?

\[ Y \leq -x+2 \quad \text{Yes, the point} \quad (1, -3) \quad \text{is a solution} \]

\[ (-3) \leq -(1)+2 \quad \text{because both inequalities are true.} \]

\[ -3 \leq -1+2 \quad \text{and} \quad -3 \leq 1 \]

\[ Y > x-6 \quad \text{No, (1, -3)} \quad \text{is a solution.} \]

**Today's New Vocab (2 of 4)**

Does (1, -3) lie in the solution set? Yes

\[ F(x) \leq -x + 2? \]

<table>
<thead>
<tr>
<th>( x )</th>
<th>( F(x) )</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>-2</td>
</tr>
<tr>
<td>6</td>
<td>-4</td>
</tr>
</tbody>
</table>

Normal Line? Yes

Shading? Yes

Where? Below

Why? Less than

**Today's New Vocab (3 of 4)**

Does (1, -3) lie in the solution set? Yes

\[ G(x) > x - 6? \]

<table>
<thead>
<tr>
<th>( x )</th>
<th>( G(x) )</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-6</td>
</tr>
<tr>
<td>2</td>
<td>-4</td>
</tr>
<tr>
<td>4</td>
<td>-2</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
</tr>
</tbody>
</table>

Normal Line? No

Shading? Yes

Where? Above

Why? Greater than

**Today’s New Vocab (4 of 4)**

Yes, True, (1, -3) is a solution.
Today's New Vocab (4 of 4)
Is the point (1, -3) a solution to the system? YES
Why? The point is true for both. The point is in the Double shaded (Solution Area.)

---

Wednesday Jan 29 Work Period
Determine if the point (3, 4) a solution to the system of inequalities?

\[
\begin{align*}
y &< 2x - 0.25 \\
4 &< 6 - 0.25 \\
4 &< 5.75 \quad \text{Yes, True!}
\end{align*}
\]

\[
\begin{align*}
y &\geq \frac{2}{3} x + 4 \\
4 &\geq -2 + 4 \\
4 &\geq 2 \quad \text{Yes, True!}
\end{align*}
\]

Both are TRUE. So, (3, 4) is a solution to the system.

---

Wednesday Jan 29 Exit Ticket
Is the point (3, 4) a solution? The solution makes both inequalities TRUE.

Non-solution: (-2, 2)
Non-solution: (-1, 8)
Non-solution: (3, -3)
Solution: (3, 4)
Solution: (7, 4)

---

Today's Objective
Unit 5
Lesson 4
Students will be able to determine if a point is a solution for an inequality.
Friday Jan 31 Activator
Create a table and a graph.
Write a solution. ( 0, -3 )
\[
y = 2x - 3.
\]
<table>
<thead>
<tr>
<th>x</th>
<th>y</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-3</td>
</tr>
<tr>
<td>1</td>
<td>-1</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>
Any point on the line or the table.

Today's New Vocab (1 of 4)
Write the equation in Slope Intercept Form
\[
y = Mx + B.
\]
y - 2x = -3
What is wrong with the current equation?
\[
+ 2x + 2x
\]
The -2x is on the wrong side.
The "y" needs to be by itself.

Today's New Vocab (2 of 4)
Write the equation in Slope Intercept Form.
\[
Y = Mx + B.
\]
3x + y = 7
-3x
What is wrong with the current equation?
y = 7 - 3x
Y = -3x + 7
The 3x is on the wrong side.
The "y" needs to be by itself.

Today's New Vocab (3 of 4)
Create a table for the function. \( f(x) = -3x + 7 \).
What is the solution? (2, 1)

<table>
<thead>
<tr>
<th>x</th>
<th>y</th>
<th>x</th>
<th>f(x)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-3</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>1</td>
<td>-1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>3</td>
<td>-2</td>
</tr>
</tbody>
</table>

Page #19 Lesson 5.5

-19-
**Today’s New Vocab (4 of 4)**

Determine if the point \((2,1)\) is a solution to the system?

\[
\begin{align*}
y - 2x &= -3 \\
(1) - 2(2) &= -3 & \text{Yes, both equations are true.} \\
1 - 4 &= -3 \\
-3 &= -3 \\
6 + 1 &= 7 \\
7 &= 7
\end{align*}
\]

Yes, True, \((2, 1)\) is a solution.

---

**Friday Jan 31 Work Period**

When solved graphically, will this system of equations have a solution? NO, b/c no intersection.

\[f(x) = -x + 5 \quad g(x) = -x + 1\]

<table>
<thead>
<tr>
<th>x</th>
<th>f(x)</th>
<th>x</th>
<th>g(x)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>5</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>2</td>
<td>-1</td>
</tr>
</tbody>
</table>

---

**Friday Jan 31 Exit Ticket**

What is the solution to the system of equations?

(-2, -1)

Write a solution to the system of inequalities.

1 True 
1 False
2 False
2 True

---

**Today’s Objective**

Unit 5
Lesson 5

Students will be to graph a system of equations.

---

20
Algebra 5.6 Notes

**Tuesday Feb 4 Activator**
Write the inequality.
Up or Down? Where does the line start?
\[ y > -2 \frac{x}{1} + 4 \]
Right?
Dotted or Solid?
Shade above or below?
Solutions? \((3, 2)\)

**Today’s New Vocab (1 of 3)**
What is the difference between
\[ g(x) = 2x + 1 \]
\[ g(x) < 2x + 1? \]
<table>
<thead>
<tr>
<th>(x)</th>
<th>(g(x))</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
</tr>
</tbody>
</table>
Dotted or solid?
Shade above or below?
Write one Solution: \((3, 1)\)

**Today’s New Vocab (2 of 3)**
Graph the inequality.
\[ f(x) \geq -2 \frac{x}{3} + 1 \]
Dotted or solid?
Shade above or below?
Write one Solution: \((5, 4)\)

**Today’s New Vocab (3 of 3)**
What is the difference between
\[ h(x) = 3x + 7 \]
\[ h(x) \geq 3x + 7? \]
<table>
<thead>
<tr>
<th>(x)</th>
<th>(g(x))</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3</td>
<td>-2</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>-2</td>
<td>1</td>
</tr>
<tr>
<td>-1</td>
<td>4</td>
</tr>
<tr>
<td>0</td>
<td>7</td>
</tr>
</tbody>
</table>
Dotted or solid?
Shade above or below?
Write one Solution: \((-1, 12)\)
Write Non-Solution: \((-1, 6)\)

-23-
Group Work Questions

#1 1
#2 2
#3 3
#4 1
#5 2
#6 3
#7 1
#8 2
#9 3
#10 1

Tuesday Feb 4 Work Period

Which ordered pair is in the solution set of j(x) < 2x + 1?
(1,5) or (0,1) or (5,2) or (-3,1)

<table>
<thead>
<tr>
<th>x</th>
<th>j(x)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
</tr>
</tbody>
</table>

j(x) < 2x + 1
(2) < 2(5) + 1
2 < 10 + 1
2 < 11 True

Where do you shade?

Tuesday Feb 4 Exit Ticket

Which ordered pair is in the solution set of the system of linear inequalities graphed?
(0, 0)

Which ordered pairs are NOT in the solution set of the system of linear inequalities graphed?
(-6, 1) and (-3, 8) and (3, 4)

Today's Objective

Unit 5
Lesson 6

Students will be able to graph an inequality and write a solution.
Algebra 5.7 Notes

Thursday Feb 6 Activator
Write two equations to determine how many $1's and $5's I have in my pocket. I have 7 green bills with only $1's and $5's with a total of $19.

Let \( x \) = # of $1's
Let \( y \) = # of $5's
\[
\begin{align*}
x + y &= 7 \\
$1x + $5y &= $19
\end{align*}
\]

The Amount Equation

The Value Equation

Today's New Vocab (1 of 3)
Write two let statements and two equations.
Nicole has 11 coins and has $1.20 in her pocket. How many nickels and dimes does she have?

Let \( n \) = # nickels
Let \( d \) = # dimes
\[
\begin{align*}
n + d &= 11 \\
$.05n + $.10d &= $1.20
\end{align*}
\]

The Amount Equation

The Value Equation

Today's New Vocab (2 of 3)
Flying with the wind a plane went 348 miles per hour. Flying into the wind the plane only went 316 miles per hour. What is the speed of the plane in still air? What is the speed of the wind?

Let \( p \) = Speed of plane
Let \( w \) = Speed of wind
\[
\begin{align*}
p + w &= 348 \\
p - w &= 316
\end{align*}
\]

Today’s New Vocab (3 of 3)
Mary wants to have a wedding. Each guest costs $55, and she is only allowed to have 120 guests at the wedding because of the size of the room. Write two equations which represent this situation. She only has $6,600.

Let \( B \) = Bride guests
Let \( G \) = Groom guests
\[
\begin{align*}
B + G &= 120 \\
$55B + $55G &= $6,600
\end{align*}
\]

The amount of guests

The total cost of all guests
Group Work Questions

#1 1  
#2 2  
#3 1  
#4 2  
#5 1  
#6 2  
#7 1  
#8 2  
#9 1  
#10 2

Thursday Feb 6 Work Period
Write two let statements and two equations.
You work for McDonalds. You do the ordering. If you sell 1 hamburger for $1 and buy the burger for $0.20. How many do you need to sell to make $100?

Let \( B \) = \# burgers \( \frac{1 - 0.20}{p} \) The Profit Equation
Let \( p \) = The profit \( \frac{100}{p} = B \) How many burgers?

Thursday Feb 6 Exit Ticket
The sum of two numbers is 12. The difference of the two numbers is -4. Find the two numbers.

Let \( F \) = First # \( F + S = 12 \)
Let \( S \) = Second # \( F - S = -4 \)

Today's Objective
Unit 5
Lesson 7
Students will be able to write equations from word problems.
Monday Feb 10 Activator

1. Is $\{y, z\}$ a solution to the system of equations?

\[
\begin{align*}
y &= 5x - 12 \\
2x + y &= 20
\end{align*}
\]

#4: Both are True. So,
\[
\begin{align*}
8 &= 20 - 12 \\
8 &= -12 + 20
\end{align*}
\]

$4, 8$ is a solution to $8 = 8 \quad True$ True

---

Today's New Vocab (1 of 3)

1. Which of the following is the $x$-coordinate of the solution to the system shown below?

\[
\begin{align*}
2x + 3y &= 18 \\
4x - 3y &= 12 \\
x &= 5
\end{align*}
\]

---

Today's New Vocab (2 of 3)

9. Find the value of $x$ that solves the system shown below. Show the work that leads to your answer.

\[
\begin{align*}
y &= 3x & \text{and} & & 2x + y &= -30 \\
2x + 3x &= -30
\end{align*}
\]

\[
\begin{align*}
x &= -6
\end{align*}
\]

---

Today's New Vocab (3 of 3)

13. Match the graph to the system of inequalities shown below. Explain how to shade.

---

#13

---

Page 29

---
Monday Feb 10 WP/ET

16. A party is thrown where 2 types of tables are used. Each table either sits 3 people or 6 people. A total of 170 people can be sat at the tables. E represents the number of 3-person tables and T represents the number of 6-person tables. Write a system of equations that models this situation.

\[
\begin{align*}
E + T &= 20 \\
3E + 6T &= 170
\end{align*}
\]

#16  page 32

Wednesday Feb 12 Activator

- Please take out both study guides
- Unit #5 Test 10% Questions #1,2,11,13
- Modified Testing Rules
- You must receive at least a 65%, or you must stay after school to complete it.
- Rule 3: If you do not finish the test, you could lose up to 15% from your grade.
- Tutoring: Wed After 2:45-4:15, Friday 1st (7:45-8:30)
- Peanut Hershey Bars 6 chips, Sour Patch Kids 3 chips each

Today’s Objective

Students will be able to solve problems from Unit 5.