Anchor Set
A1 – A6

With Annotations
The equation of line s is \( y = -3x + 2 \).
The equation of line t is \( y = \frac{1}{2}x - 3 \).
Line s and line t form a system of equations. The solution to the system of equations is located at point \( P \).

**Part A**
Which graph correctly shows line s, line t, and point \( P \)?

- **A.**
- **B.**
- **C.**
- **D.**
Part B

Can an equation of a line share more than one solution with line s?

- If yes, explain your reasoning and provide an example of an equation.
- If no, explain your reasoning and list any assumptions that you have made.

Enter your answer and your explanation in the space provided.

© 2019 CCSSO, LLC
### VH074629 Rubric Part A

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1     | Student response includes the following element.  
  - **Reasoning component** = 1 point  
    - This part of the item is machine scored. Student selects Option A. |
| 0     | Student response is incorrect. |

### VH074629 Rubric Part B

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
</table>
| 2     | Student response includes the following 2 elements.  
  - **Reasoning component** = 1 point  
    - The student indicates that for an equation to share more than one solution with line s, the equations must be equivalent.  
    - **Reasoning component** = 1 point  
    - The student provides an example of an equivalent equation. |
|       | Sample Student Response:  
  The only way that there can be more than one solution to a system of equations is for the equations to be equivalent. The graphs of the equations would coincide. When the equations are equivalent, there are an infinite number of solutions. Every solution to one of the equations is a solution to the system of equations.  
  If the equation is \(3y = -9x + 6\), then this equation would share infinitely many solutions with line s. I divided both sides of the above equation by 3 and simplified. \(3y/3 = (-9x + 6)/3; y = -3x + 2\)  
  This is the equation for line s; so, these two lines are equivalent and their graphs coincide.  
  Or other valid response. |
| 1     | Student response includes 1 of the 2 elements. |
| 0     | Student response is incorrect or irrelevant. |
Part A

What graph correctly shows line a, line l, and point P?

- A

- B

- C

- D

Part B

Can an equation of a line have more than one solution with line l?

- Yes, they could if they had the same slope and the same y intercept then they would have and infinite amount of solutions.

- The other line would also have to have the equation $y = -3x + 2$
This response receives full credit. The response includes each of the two required elements.

- This response indicates that for an equation to share more than one solution with line \( s \), the equations must be equivalent (if they had the same slope and the same \( Y \) intercept then they would have and infinite amount of solutions).

- This response gives an example of an equivalent equation (The other line would also have to have the equation \( y = -3x + 2 \)).
Part A

Which graph correctly shows line $s$, line $t$, and point $P$?

[Four graphs showing different combinations of lines $s$ and $t$ and point $P$.]
**Part B**

Can an equation of a line share more than one solution with line $s$?

- If yes, explain your reasoning and provide an example of an equation.
- If no, explain your reasoning and list any assumptions that you have made.

Enter your answer and your explanation in the space provided.

Yes, an equation of a line can share more than one solution with line $s$ because the equation for the line could be the same equation for line $s$. For instance, the equation for the line could be $y + 3x = 2x$, and when solved for $y$, it would be $y = -3x + 2$, which is the same equation as the equation for line $s$. Therefore, the two lines would have the same points, so they would together have more than one solution.
This response receives full credit. The response includes each of the two required elements.

- This response indicates that for an equation to share more than one solution with line s, the equations must be equivalent (the two lines would have the same points, so they would together have more than one solution).

- This response gives an example of an equivalent equation ($y + 3x = 2$, and when solved for $y$, it would be $y = -3x + 2$, which is the same equation as the equation for line s).
Part B: Score Point 1

Part A

Which graph correctly shows line a, line b, and point P?

- A.
- B.
- C.
- D.

Part B

Can a line of a line shown more than one solution with line P?

- Yes, explain your reasoning and provide an example of an equation.
- No, explain your reasoning and list any assumptions that you have made.

Enter your answer and your reasoning in the space provided.

Yes, because all of the coordinates can be the same. Witch means that the lines would be like on top of each other.
Anchor Paper 3  
Part B: Score Point 1

This response receives partial credit. The response includes one of the two required elements.

- This response indicates that for an equation to share more than one solution with line $s$, the equations must be equivalent (all of the coordinates can be the same. Which means that the lines would be like ontop of each other).

This response does not provide an example of an equation that would share more than one solution with line $s$. 

The equation of line $a$ is $y = -3x + 2$.
The equation of line $f$ is $y = \frac{1}{2}x - 3$.

Line $a$ and line $f$ form a system of equations. The solution to the system of equations is located at point $P$.

**Part A**
Which graph correctly shows line $a$, line $f$, and point $P$?

- A.
- B.
- C.
- D.

**Part B**
Can an equation of a line share more than one solution with line $a$?
- If yes, explain your reasoning and provide an example of an equation.
- If no, explain your reasoning and list any assumptions that you have made.

Enter your answer and your explanation in the space provided.

Yes, if the lines were on top of each other. Or zigzagging. So if, I’ll just say, line $I$ has the same equation as line $a$, then there will be infinitely many solutions. So the equation for line “I” would be $y = -3x + 2$. 

© 2019 CCSSO, LLC
This response receives partial credit. The response includes one of the two required elements.

- This response gives an example of an equivalent equation (equation for line “l” would be \( y = -3x + 2 \)).

This response indicates that for an equation to share more than one solution with line \( s \), the equations must be equivalent (Yes, if the lines were on top of each other. Or zigzagging. So if, I’ll just say, line l has the same equation as line \( s \), then there will be infinitely many solutions). However, the use of “zigzagging” makes the explanation incorrect.
Part B: Score Point 0

The equation of line $a$ is $y = -3x + 2$.
The equation of line $b$ is $y = \frac{1}{2}x - 3$.

Line $a$ and line $b$ form a system of equations. The solution to the system of equations is located at point $P$.

Part A
Which graph correctly shows line $a$, line $b$, and point $P$?

- [ ] A.
- [ ] B.
- [x] C.
- [ ] D.

Part B
Can an equation of a line share more than one solution with line $a$?
- If yes, explain your reasoning and provide an example of an equation.
- If no, explain your reasoning and list any assumptions that you have made.

Enter your answer and your explanation in the space provided.

Yes, an equation of a line can share more than one solution.
**Annotation**

**Anchor Paper 5**
**Part B: Score Point 0**

This response receives no credit. The response includes none of the two required elements.

This response provides the correct answer of yes, however the explanation simply repeats the prompt and does not demonstrate any understanding of the task (yes an equation of a line can share more than one solution).

This response does not provide an example of an equation that would share more than one solution with line $s$. 

© 2019 CCSSO, LLC
The equation of line $s$ is $y = -3x + 2$.
The equation of line $t$ is $y = \frac{1}{2}x - 3$.

Line $s$ and line $t$ form a system of equations. The solution to the system of equations is located at point $P$.

Part A
Which graph correctly shows line $s$, line $t$, and point $P$?

- A.

- B.

- C.

- D.

Part B
Can an equation of a line share more than one solution with line $s$?
- If yes, explain your reasoning and provide an example of an equation.
- If no, explain your reasoning and list any assumptions that you have made.

Enter your answer and your explanation in the space provided.

Yes, an equation can share more than one solution with $S$. Some other examples are $y = 3x - 2$, or $y = \frac{1}{2}x + 3$ those examples are ones that would work with $S$. 

© 2019 CCSSO, LLC
This response receives no credit. The response includes none of the two required elements.

This response provides the correct answer of yes, however the explanation simply repeats the prompt.

This response does provide an equation and an expression, but neither would share more than one solution with line $s$ ($Y = 3x - 2; Y - \frac{1}{2}x + 3$).
Practice Set
P1 - P5

No Annotations Included
Part A

Which graph correctly shows line s, line t, and point P?
Part B

Can an equation of a line share more than one solution with line s?

- If yes, explain your reasoning and provide an example of an equation.
- If no, explain your reasoning and list any assumptions that you have made.

Enter your answer and your explanation in the space provided.

Yes. If a line has the same slope and y intercept, it has an infinite amount of solutions.

Example: Line s: \( y = -3x + 2 \)

Other equation: \( 4 + x + 2x = 6 - y \)

\[
\begin{align*}
4 + 3x &= 6 - y \\
-4 &= -4 \\
3x &= 2 - y \\
-3x &= 2 - y \\
y &= -3x + 2
\end{align*}
\]
Part A

Which graph correctly shows line $s$, line $t$, and point $P$?
Part B

Can an equation of a line share more than one solution with line s?

- If yes, explain your reasoning and provide an example of an equation.
- If no, explain your reasoning and list any assumptions that you have made.

Enter your answer and your explanation in the space provided.

Yes it can share more than one solutions if the equations were equal to each other. If the equations were equal to each other there would be infinitely many solutions.

Ex. \[ 3x - 10 = -10 + 3x \]
\[ x = 2 \]
\[ x = 4 \quad \quad 3x^2 - 10 = -10 + 3x^2 \]
\[ 12 - 10 = -10 + 12 \quad 6 - 10 = -10 + 6 \]
\[ 2 = 2 \quad \quad -4 = -4 \]
The equation of line $s$ is $y = -3x + 2$.
The equation of line $t$ is $y = \frac{1}{2}x - 3$.

Line $s$ and line $t$ form a system of equations. The solution to the system of equations is located at point $P$.

Part A
Which graph correctly shows line $s$, line $t$, and point $P$?

- A.
- B.
- C.
- D.

Part B
Can an equation of a line have more than one solution with line $s$?
- If yes, explain your reasoning and provide an example of an equation.
- If no, explain your reasoning and list any assumptions that you have made.

Enter your answer and your explanation in the space provided.

I think yes because there is more than one solution. There is one solution, infinite many solutions, and no solution.
The equation of line \( a \) is \( y = -3x + 2 \).
The equation of line \( r \) is \( y = \frac{1}{2}x - 3 \).

Line \( a \) and line \( r \) form a system of equations. The solution to the system of equations is located at point \( P \).

**Part A**

Which graph correctly shows line \( a \), line \( r \), and point \( P \)?

- A.
- B.
- C.
- D.

**Part B**

Can an equation of a line share more than one solution with line \( x \)?

- If yes, explain your reasoning and provide an example of an equation.
- If no, explain your reasoning and list any assumptions that you have made.

Yes, a line can share more than one solution for example \( 3x + y = 2 \). This is called infinite solutions.
The equation of line \( a \) is \( y = -3x + 2 \).
The equation of line \( b \) is \( y = \frac{1}{2}x - 3 \).

Line \( a \) and line \( b \) form a system of equations. The solution to the system of equations is located at point \( P \).

**Part A**
Which graph correctly shows line \( a \), line \( b \), and point \( P \)?

- [ ] A.
- [ ] B.
- [ ] C.
- [ ] D.

**Part B**
Can an equation of a line share more than one solution with line \( a \)?
- [ ] If yes, explain your reasoning and provide an example of an equation.
- [ ] If no, explain your reasoning and list any assumptions that you have made.

Enter your answer and your explanation in the space provided.

Yes, if lines share more than one point the solutions will be infinite because the lines will be together and going in the same direction.
## Practice Set

<table>
<thead>
<tr>
<th>Paper</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>2</td>
</tr>
<tr>
<td>P2</td>
<td>1</td>
</tr>
<tr>
<td>P3</td>
<td>0</td>
</tr>
<tr>
<td>P4</td>
<td>2</td>
</tr>
<tr>
<td>P5</td>
<td>1</td>
</tr>
</tbody>
</table>