Hi There 8th Grade Algebra Scholars,

Ms. Barclay and Ms. Galston have put together some work opportunities to keep your skills fresh and strengthen the learning you have already received this year. The lesson provided is enough for 1-2 hours of work for the week. If you need to contact your teacher, you can email her directly through the address below. You can also connect with your individual teacher through your respective Microsoft Teams page in Office 365.

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We hope during this time that you are staying safe, participating in things that you love to do, and enjoying your family.

Instructions:

Daily: Login in to Success Maker for 15 Minutes

• We know this is new for many of you and that is okay. The program is similar to iReady with a bonus. After 15 minutes . . . the program stops. That’s right, you only work on it for 15 minutes a day.

• Link: bit.do/successmaker
  o This shortcut comes thanks to Ms. Sherman.

• Login: Student ID Number
• Password: Student ID Number

This Week’s Lesson

Learning Target: I can find solutions to Systems of Linear Equations by Elimination

Standard: HSA.CED.A.2

• The first page (Frayer Model) is notes on how to solve Systems of Linear Equations by Graphing, Substitution, and Elimination.
• The second page is your lesson for this week. Please make sure to follow the instructions and solve accordingly.
## SYSTEMS OF LINEAR EQUATIONS

**Definition:** A System of Linear Equations is two or more linear equations using the same variables.

**Solutions:** A System can have:
- **One Solution** (different slopes)
- **No Solutions** (same slopes – different y-intercepts)
- **Infinite Solutions** (same slopes – same y-intercepts)

## SOLVING BY GRAPHING

**Step 1** → Rewrite each equation in slope intercept form
**Step 2** → Graph both equations on the same coordinate plane
**Step 3** → The place where the two intersect is the solution \((x, y)\) [there could be no solution or infinite solutions]
**Step 4** → Check your work

## SOLVING BY SUBSTITUTION

**Step 1** → Isolate a variable in 1 equation
**Step 2** → Substitute the isolated variable into the other equation
**Step 3** → Solve the equation for the variable
**Step 4** → Substitute the solution in step 3 into one of the equations to find the other variable
**Step 5** → Check your work

## SOLVING BY ELIMINATION

**Step 1** → Write the system so that the terms are aligned
**Step 2** → Multiply each side of the equations by a constant that makes either the \(x\) or \(y\) terms opposites
**Step 3** → Add the equations, solving for one variable
**Step 4** → Substitute the solution in step 3 into the other equation to find the other variable
**Step 5** → Check your work
4-3 Additional Practice
Solving Systems of Equations by Elimination

Use elimination to solve each system of equations.

1. \[ \begin{align*}
    x + y &= 7 \\
    x - y &= -3
\end{align*} \]

2. \[ \begin{align*}
    x - 2y &= 10 \\
    3x + y &= -12
\end{align*} \]

3. \[ \begin{align*}
    5x + 3y &= 12 \\
    x - 4y &= 7
\end{align*} \]

4. \[ \begin{align*}
    6x + 2y &= -12 \\
    4x + 3y &= 7
\end{align*} \]

5. \[ \begin{align*}
    4x - 6y &= 26 \\
    5x - 4y &= 8
\end{align*} \]

6. \[ \begin{align*}
    5x + 3y &= 13 \\
    7x + 8y &= -16
\end{align*} \]

Which solution method, graphing, substitution, or elimination, is the most appropriate for solving each system of equations? Explain.

7. \[ \begin{align*}
    3x + 8y &= -4 \\
    2x - 4y &= 16
\end{align*} \]

8. \[ \begin{align*}
    6x - y &= 16 \\
    x = 4y - 5
\end{align*} \]

9. \[ \begin{align*}
    x + y &= 19 \\
    3x - 2y &= -3
\end{align*} \]

10. Determine whether the first system of equations is equivalent to the second system of equations. Explain.

\[ \begin{align*}
    3x + 5y &= 1 \\
    2x - 6y &= 38
\end{align*} \] \[ \begin{align*}
    18x + 30y &= 6 \\
    10x - 30y &= 190
\end{align*} \]

11. The cost of 2 bottles of water and 4 apples is $5.50. The cost of 3 bottles of water and 5 apples is $7.50. Find the cost of one apple and the cost of one bottle of water.