Pset#1: Solving systems of equations by substitution

Precalculus
Spring Semester 2022
Herbert H. Lehman High School

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Be sure to: Complete all work in your notebook. Upload a photo to Google Classroom to submit. Show all work!

For exercises (1-2), determine whether each ordered pair is a solution to the system of equations.

1. $\begin{cases} 4x - y = 1 \\ 6x + y = -6 \end{cases}$

   A. $(0, -3)$
   B. $(-1, -5)$
   C. $(-\frac{3}{2}, 3)$
   D. $(-\frac{1}{2}, -3)$

2. $\begin{cases} 4x^2 + y = 3 \\ -x - y = 11 \end{cases}$

   A. $(2, -13)$
   B. $(-2, -9)$
   C. $(-\frac{3}{2}, 6)$
   D. $(-\frac{7}{4}, -\frac{37}{4})$

3. Solve each system of equations using substitution. Be sure to check your results.

   a. $\begin{cases} x - y = 0 \\ 5x - 3y = 10 \end{cases}$

   b. $\begin{cases} 2x - y + 1 = 0 \\ 4x + y - 5 = 0 \end{cases}$

   c. $\begin{cases} 1.5x + 0.8y = 2.3 \\ 0.3x - 0.2y = 0.1 \end{cases}$

   d. $\begin{cases} \frac{1}{2}x + \frac{3}{4}y = 10 \\ \frac{3}{4}x - y = 4 \end{cases}$

4. A small software company invests $16,000 to build an app that solves systems of equations for high school students. The app will sell for $19.95 and is produced for $9.45.

   a. Write the cost and revenue functions for x units produced and sold.
   b. How many units need to be sold before the company can break even?