

Graph the following functions.

$f(x) = x$ $g(x) = 3x - 4$

$j(x) = \frac{2}{3}x + 1$ $k(x) = 5 - x$

$h(x) = -2x + 5$ $m(x) = 3$

Jan 7-8:10 AM

5-1 Systems of Equations

Content Objective: I will be able to solve systems of linear equations in multiple ways including: by substitution, elimination and graphically.

Language Objective: I can communicate verbally and in writing what it means to solve a linear system.

Vocabulary: Consistent Dependent
Consistent Independent
Inconsistent
Coinciding Lines

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Discussion Questions

What is a linear equation?
Straight + line

What is a linear system?
multiple equations

What does it mean to solve a linear system?
*find x and y
write as ordered pair (x, y)*

Jan 7-8:07 AM

Solving Linear Equations Graphically

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You Try

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

$(2, 2)$ *No Solution*

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Solving Linear Equations By Substitution

$\begin{cases} 2x - 3y = -1 \\ y = x - 1 \end{cases}$ $\begin{cases} x + 3y = 1 \\ -3x - 3y = -15 \end{cases}$

$y = 4 - 1$
 $y = 3$
 $2x - 3(x - 1) = -1$
 $2x - 3x + 3 = -1$
 $-x + 3 = -1$
 $-x = -4$
 $x = 4$

$x + 3y = 1$
 $-3x - 3y = -15$
 $x + 3y = 1$
 $-3x - 3y = -15$
 $x = 1 - 3y$
 $-3(1 - 3y) - 3y = -15$
 $-3 + 9y - 3y = -15$
 $-3 + 6y = -15$
 $6y = -12$
 $y = -2$

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You Try

$$\begin{cases} y = 6x - 11 \\ -2x - 3y = -7 \end{cases} \quad \begin{cases} -7x - 2y = -13 \\ x - 2y = 11 \end{cases}$$

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Solving Linear Equations
by Elimination

$$\begin{cases} -4x - 2y = -12 \\ 4x + 8y = -24 \end{cases} \quad \boxed{(6, -6)}$$

$$6y = -36$$

$$y = -6$$

$$-4x - 2(-6) = -12$$

$$-4x + 12 = -12$$

$$-4x = -24$$

$$x = 6$$

$$\begin{cases} -4x + 9y = 9 \\ x - 3y = -6 \end{cases}$$

$$4x - 12y = -24$$

$$-3y = -15$$

$$y = 5$$

$$(9, 5)$$

$$x - 3(5) = -6$$

$$x - 15 = -6$$

$$x = 9$$

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You Try

$$\begin{cases} 7x + 2y = 24 \\ 8x + 2y = 30 \end{cases} \quad \begin{cases} 8x + 14y = 4 \\ -6x - 7y = -10 \end{cases}$$

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