

Lesson 3.2 Warm Up (Clickers)

1. Describe the transformations of the graph of the function $f(x) = 3|x - 2| + 1$ compared to its parent function $g(x) = |x|$.

2. What is a system of equations and what does its solution look like?

Lesson 3.2 Solving Systems Algebraically

Essential Understanding: You can solve a system of equations by writing equivalent systems until the value of one variable is clear. Then substitute to find the value(s) of the other variable(s).

Recall from algebra that there were three methods to solving systems of equations--graphing, substitution, and elimination. We already did graphing, now lets revisit the last two.

Ex. Solve by substitution: $3x + 4y = 12$

$$2x + y = 10$$

Steps to solve by substitution:

1. Isolate one variable.
2. Substitute that variable into the other equation.
3. Solve for the variable.
4. Substitute the value of the variable from #3 into either equation and then solve for the other variable.

Ex. Solve $x + 3y = 5$

$$-2x - 4y = -5$$

1 Solve (put your answer in as an ordered pair):

$$5x - 3y = -1$$

$$x + y = 3$$

Steps to solve by elimination:

1. Get one of the variables of the equations to have the same coefficient but opposite signs.
2. Add the two equations and solve for the remaining variable.
3. Substitute the value of the variable from #2 into either equation and solve for the other variable.

Ex. Solve: $4x + 2y = 9$

$$-4x + 3y = 16$$

Ex. Solve: $-2x + 3y = -14$

$$4x + 3y = 46$$

Ex. Solve: $6x + 4y = 2$

$$3x + 2y = -1$$

2 Solve (put your answer in as an ordered pair):

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

$$5x - 8y = 20$$

3 Solve (put your answer in as an ordered pair):


$$3x + 7y = 15$$

$$5x + 2y = -4$$

4 Solve: $-x + y = -2$

$$2x - 2y = 0$$

Ex. A music store offers piano lessons at a discount for customers buying new pianos. The costs for lessons and a one-time fee for materials (including music books, CDs, software, etc.) are shown in the advertisement. What is the cost of each lesson and the one-time fee for materials?



The image is a graphic for piano lessons. It features the title 'Piano Lessons' in a stylized font with musical notes. Below the title is a table showing the cost of lessons. At the bottom, there is a piano keyboard graphic and a note that prices include a one-time fee.

6 Lessons:	12 Lessons:
\$300	\$480

(Prices include one-time fee)

Ex. An online music company offers 15 downloads for \$19.75 and 40 downloads for \$43.50. Each price includes the same one-time registration fee. What is the cost of each download and the registration fee?