

Chapter 5 Review

Vocabulary Review

elimination method (p. 158)
solution of a system (p. 148)

substitution method (p. 153)
system of equations (p. 148)

Choose the correct vocabulary term to complete the sentence.

1. With the ? you add or subtract equations to remove one of the variables. **elimination method**
2. A ? is a set of two or more equations that have the same variables. **system of equations**
3. When you use the ? you solve one equation for one variable. Then you substitute the value of the variable into the other equation to solve for the other variable. **substitution method**

Lesson 5-1

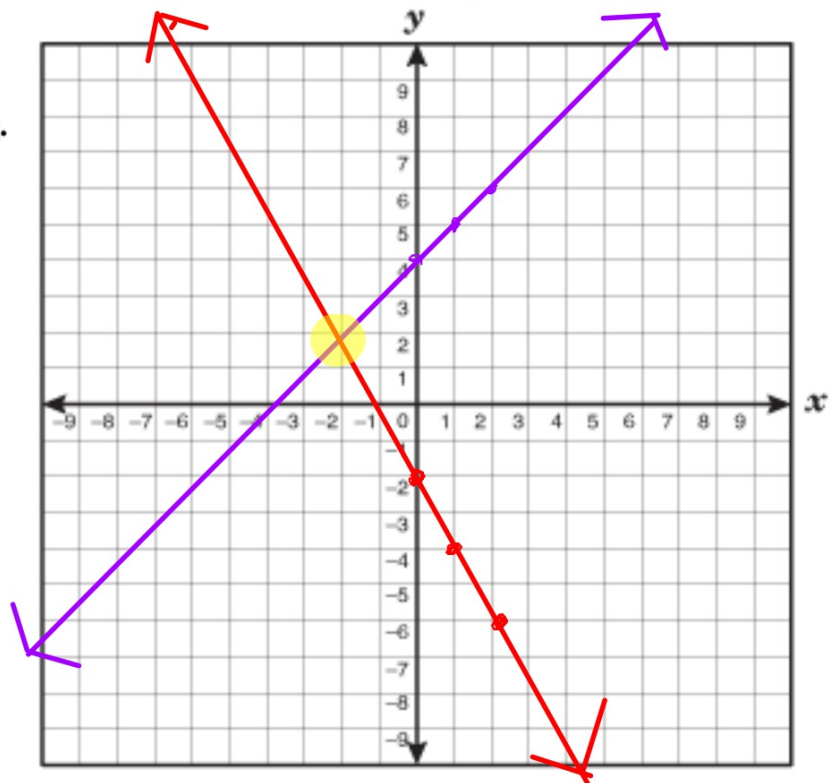
- To solve systems of two linear equations in two variables by graphing the equations

Solve each system of equations by graphing.

$$y = x + 4 \quad (-2, 2)$$

$$y = -2x - 2$$

You can graph a **system of equations** to find where the lines intersect. The point where the lines intersect is the **solution of the system**.



Lesson 5-2

- To solve a system of linear equations by substitution

You can solve a system of linear equations using the **substitution method**. To solve by substitution, first solve one of the equations for a variable. Then substitute for that variable in the other equation and solve for the other variable.

Solve each system of equations by substitution.

$$y = x - 5$$

$$x + y = 3 \quad (4, -1)$$

$$\begin{array}{r} x + x - 5 = 3 \\ 2x - 5 = 3 \\ \quad +5 \quad +5 \\ \hline 2x = 8 \\ \frac{2x}{2} = \frac{8}{2} \\ \hline x = 4 \end{array}$$

$$\begin{array}{r} 4 + y = 3 \\ -4 \quad -4 \\ \hline y = -1 \end{array}$$

$(4, -1)$

Lesson 5-3

- To solve a system of linear equations by elimination

You can solve systems of linear equations using the **elimination method**. In the elimination method, you use the Addition or Subtraction Properties of Equality to add or subtract equations in order to eliminate one variable.

If you can see additive inverses, add; if you see the exact variables, subtract and if you cannot see either, use factors to create additive inverses, or exact variables.

Solve the systems of equations by elimination.

$$11. \begin{array}{r} x + y = 4 \\ + x - y = 2 \end{array} \quad (3, 1)$$

$$\begin{array}{r} 2x = 6 \\ \frac{2x}{2} = \frac{6}{2} \\ \hline x = 3 \end{array} \quad (3, 1)$$

$$\begin{array}{r} 3 + y = 4 \\ \quad y = 1 \end{array}$$

$$13. \begin{array}{r} 7x - 5y = 19 \\ 3x - 2y = 6 \end{array}$$

multiply by 2
multiply by 5

$$\begin{array}{r} 14x - 10y = 38 \\ - 15x - 10y = 30 \\ \hline -1x = 8 \\ \frac{-1x}{-1} = \frac{8}{-1} \end{array} \quad (-8, -15)$$

$$\begin{array}{r} 3(-8) - 2y = 6 \\ -24 - 2y = 6 \\ + 24 \quad +24 \\ \hline -2y = 30 \\ \frac{-2y}{-2} = \frac{30}{-2} \\ \hline y = -15 \end{array}$$

Lesson 5-4

- To use systems of linear equations to solve real-world problems

You can solve word problems and applications involving systems of linear equations by graphing, by substitution, or by elimination. The substitution method is effective when one of the equations can easily be solved for one variable. The elimination method is effective when the coefficients of one of the variables are additive inverses.

	Per Page Cost	Binding
Copy Queen	\$.25	included
Office Plus	\$.10	\$4.50

18. Refer to the table at the left. Mrs. Matthews has a stack of pages that she needs to have copied and bound into a booklet. For which number of pages are the costs the same? What is the cost?

The cost is the same (\$7.50) for 30 pages.

$$\begin{aligned}y &= .25x \\y &= .10x + 4.50 \\ .25x &= .10x + 4.50 \\ - .10x & \quad - .10x \\ \hline .15x &= 4.50 \\ \frac{.15x}{.15} &= \frac{4.50}{.15} \\ x &= 30\end{aligned}$$