

Name \_\_\_\_\_ Mods \_\_\_\_\_ Date \_\_\_\_\_

**Algebra II**  
**Solving Systems of Equations (Substitution)**

**Solve the system by the substitution method.**

$$1. \begin{cases} y = 5 - 4x \\ 2x - 3y = 13 \end{cases}$$

$$2. \begin{cases} 2y + x = 9 \\ x = 3y - 3 \end{cases}$$

$$3. \begin{cases} 3s - 4t = 14 \\ 5s + t = 8 \end{cases}$$

$$4. \begin{cases} 9x - 2y = -6 \\ 7x + 8 = y \end{cases}$$

$$5. \begin{cases} -5s + t = 11 \\ 4s + 12t = 4 \end{cases}$$

$$6. \begin{cases} 2x + 2y = 2 \\ 3x - y = 1 \end{cases}$$

$$7. \begin{cases} 3a - b = 7 \\ 2a + 2b = 5 \end{cases}$$

$$8. \begin{cases} 2x - 3 = y \\ y - 2x = 1 \end{cases}$$

$$9. \begin{cases} 4x + 13y = 5 \\ -6x + y = 13 \end{cases}$$

10. An airplane has a total of 152 seats. The number of coach-class seats is 5 more than six times the number of first-class seats. How many of each type of seat are there on the plane?
11. One number is 8 more than another number and the sum of the two numbers is 26. Find the numbers.
12. The architects who designed the John Hancock Building in Chicago created a visually appealing building that slants on the sides. Thus the ground floor is a rectangle that is larger than the rectangle formed by the top floor. The ground floor has a perimeter of 860 ft. The length is 100 ft. more than the width. Find the length and the width.
13. Two supplementary angles are such that one angle is  $12^\circ$  less than three times the other. Find the measures of the angles.

Name \_\_\_\_\_ Mods \_\_\_\_\_ Date \_\_\_\_\_

## Algebra II Solving Systems of Equations (Elimination)

Solve the system by the elimination method.

$$1. \begin{cases} x+3y=7 \\ -x+4y=7 \end{cases}$$

$$2. \begin{cases} 9x+5y=6 \\ 2x-5y=-17 \end{cases}$$

$$3. \begin{cases} 5r-3s=24 \\ 3r+5s=28 \end{cases}$$

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

$$5. \begin{cases} \frac{2}{5}x+\frac{1}{2}y=2 \\ \frac{1}{2}x-\frac{1}{6}y=3 \end{cases}$$

$$6. \begin{cases} 2x+3y=1 \\ 4x+6y=2 \end{cases}$$

$$7. \begin{cases} x+y+z=2 \\ 2x-y+5z=-5 \\ -x+2y+2z=1 \end{cases}$$

$$8. \begin{cases} 2x+3y+z=17 \\ x-3y+2z=-8 \\ 5x-2y+3z=5 \end{cases}$$

$$9. \begin{cases} 2r+3s+12t=4 \\ 4r-6s+6t=1 \\ r+s+t=1 \end{cases}$$

10. In one day, Glovers, Inc., sold 20 pairs of gloves. Fleece gloves sold for \$24.95 a pair and Gore-Tex gloves for \$37.50 a pair. Receipts totaled \$687.25. How many of each kind of glove were sold?
11. Paint Town sold 45 paintbrushes, one kind at \$8.50 each and another at \$9.75 each. In all, \$398.75 was taken in for the brushes. How many of each kind were sold?
12. Rudy must play 12 commercials during his 1-hour radio show. Each commercial is either 30 seconds or 60 seconds long. If the total commercial time during that hour is 10 minutes, how many commercials of each type does Rudy play?
13. Hockey teams receive two points when they win a game and one point when they tie. One season, a team won a championship with 60 points. They won 9 more games than they tied. How many wins and how many ties did the team have?