**Use matrices to solve the system.**

1. $\left\{\begin{array}{c}x-2y-3z=-1\\2x+y+z=6\\x+3y-2z=13\end{array}\right.$ 2. $\left\{\begin{array}{c}5x+2y-z=-7\\x-2y+2z=0\\3y+z=17\end{array}\right.$ 3. $\left\{\begin{array}{c}2x+6y-4z=1\\x+3y-2z=4\\2x+y-3z=-7\end{array}\right.$

4. $\left\{\begin{array}{c}2x-3y+2z=-3\\-3x+2y+z=1\\4x+y-3z=4\end{array}\right.$ 5. $\left\{\begin{array}{c}x+3y+z=0\\x+y-z=0\\x-2y-4z=0\end{array}\right.$ 6. $\left\{\begin{array}{c}2x+y+z=0\\x-2y-2z=0\\x+y+z=0\end{array}\right.$

7. $\left\{\begin{array}{c}3x-2y+5z=7\\x+4y-z=-2\end{array}\right.$ 8. $\left\{\begin{array}{c}5x +2z=1 \\ y-3z=2\\2x+y =3 \end{array}\right.$ 9. $\left\{\begin{array}{c}2x+3y=5\\x-3y=4\\x+y=-2\end{array}\right.$

10. Three solutions contain a certain acid. The first contains 10% acid, the second 30%, and the third 50%. A chemist wishes to use all three solutions to obtain a 50-liter mixture containing 32% acid. If the chemist wants to use twice as much of the 50% solution as of the 30% solution, how many liters of each solution should be used?

11. A swimming pool can be filled by three pipes, A, B, and C. Pipe A alone can fill the pool in 8 hours. If pipes A and C are used together, the pool can be filled in 6 hours; if B and C are used together, it takes 10 hours. How long does it take to fill the pool if all three pipes are used?

12. A shop specializes in preparing blends of gourmet coffees. From Colombian, Brazilian, and Kenyan coffees, the owner wishes to prepare 1-pound bags that will sell for $8.50. The cost per pound of these coffees is $10, $6, and $8, respectively. The amount of Columbian is to be three times the amount of Brazilian. Find the amount of each type of coffee in the blend.