1. Find all solutions for the following systems of linear equations by writing the solution in parametric form. How many parameters are in the solution?
(a) $\left\{\begin{array}{l}x+y-z=2 \\ x-y=0\end{array}\right.$
(c) $\left\{\begin{array}{l}x+2 y-3 z+u=4 \\ x+z=0\end{array}\right.$
(b) $\left\{\begin{array}{l}x+2 y-3 z=4 \\ x-2 y=1\end{array}\right.$
(d) $x+y+z+u+v+10=0$.
2. Solve each of the systems algebraically and geometrically (or argue that it does not have a solution). Write the augmented matrix corresponding to each of the systems.
(a) $\left\{\begin{array}{l}x+2 y=1 \\ x+1=0 \\ y-1=0\end{array}\right.$
(c) $\left\{\begin{array}{l}x+2 y=1 \\ x-1=0 \\ y+1=0\end{array}\right.$
(b) $\left\{\begin{array}{l}x+2 y=3 \\ 10 y+5 x=30\end{array}\right.$
(d) $\left\{\begin{array}{l}x+2 y=1 \\ x-2 y=1\end{array}\right.$
3. Write a linear system corresponding to the given augmented matrix.
$\left[\begin{array}{rrrrr|r}6 & 2 & -3 & 4 & 1 & 0 \\ 5 & 0 & 0 & 1 & 200 & 2\end{array}\right]$
4. Give an example of a system of three linear equations in two variables that has infinitely many solutions.
5. In order to cook a party-style pizza Margo needs 10 mushrooms and 3 large tomatoes. For a casual-style pizza she needs 5 mushrooms and 2 large tomatoes. Given that 200 mushrooms and 70 large tomatoes were consumed in a cooking, find how many pizzas of each style were cooked by Margo.
6. Compose your own word problem that requires solution of a system of linear equations. Solve the problem.
