1. Find all solutions for the following problems by writing the solution in parametric form
(a) $20 x-y=10$
(c) $a x+b y+c z+d w=e$, where $a, b, c, d$ are nonzero constants.
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) $x+y+4=0$
$9 x-3 y=0$
(c) $2 x+y=3$
$3 x-y=2$
(b) $2 x+y=3$
$20 x-30 y=-1$
$3 x-y=2$
$20 x-30 y=-10$
(d) $2 x+y=3$
$2 y+4 x=6$
3. Write a linear system corresponding to the given augmented matrix.
(a) $\left[\begin{array}{rr|r}4 & 12 & 16 \\ 3 & -9 & -1\end{array}\right]$
(b) $\left[\begin{array}{rrrr|r}-1 & 2 & -3 & 4 & 5 \\ 0 & -10 & 0 & 1 & 100\end{array}\right]$
4. Margo needs 42 mg of vitamin A and 65 mg of vitamin D per day. She has two supplements: the first contains $10 \%$ vitamin A and $25 \%$ vitamin D; the second contains $20 \%$ vitamin A and $25 \%$ vitamin D. How much of each supplement should she eat each day?
5. Compose your own word problem that requires solution of a system of linear equations. Solve the problem.
