

Standard Form

$$Ax + By = C$$

LIBRARY Your class is taking a trip to the public library. You can travel in small and large vans. A small van holds 8 people and a large van holds 12 people. Your class could fill 15 small vans and 2 large vans.

- a. **Write** an equation in standard form that models the possible combinations of small vans and large vans that your class could fill.
- b. **Graph** the equation from part (a).
- c. **List** several possible combinations.

Slope-Intercept Form

$$y = mx + b$$

SHORT RESPONSE You use a garden hose to fill a swimming pool at a constant rate. The pool is empty when you begin to fill it. The pool contains 15 gallons of water after 5 minutes. After 30 minutes, the pool contains 90 gallons of water. Write an equation that gives the volume (in gallons) of water in the pool as a function of the number of minutes since you began filling it. *Explain* how you can find the time it takes to put 150 gallons of water in the pool.

NUTRITION A snack mix requires a total of 120 ounces of some corn cereal and some wheat cereal. Corn cereal comes in 12 ounce boxes.

- The last time you made this mix, you used 5 boxes of corn cereal and 4 boxes of wheat cereal. How many ounces are in a box of wheat cereal?
- Write an equation in standard form that models the possible combinations of boxes of wheat and corn cereal you can use.
- List all possible combinations of whole boxes of wheat and corn cereal you can use to make the snack mix.

GRIDDED ANSWER The cost of renting a moving van for a 26 mile trip is \$62.50. The cost of renting the same van for a 38 mile trip is \$65.50. The cost changes at a constant rate with respect to the length (in miles) of the trip. Find the total cost of renting the van for a 54 mile trip.

★ SHORT RESPONSE A dog kennel charges \$20 per night to board your dog. You can also have a doggie treat delivered to your dog for \$5. Write an equation that models the possible combinations of nights at the kennel and doggie treats that you can buy for \$100. Graph the equation. *Explain* what the intercepts of the graph mean in this situation.