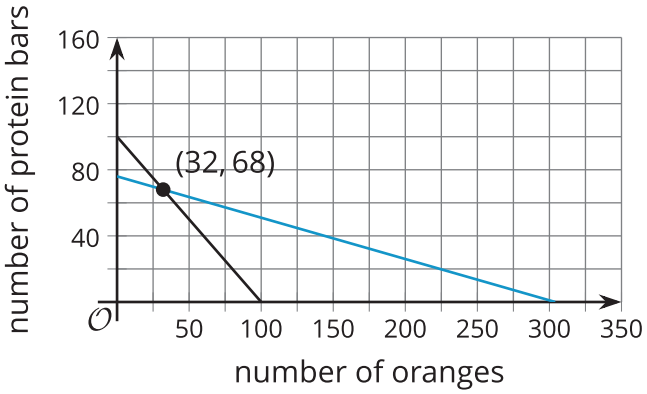
Unit 2, Lesson 12

Connecting Situations and Graphs

Let's examine graphs of lines representing situations.

12.1 Notice and Wonder: Snacks for Sale

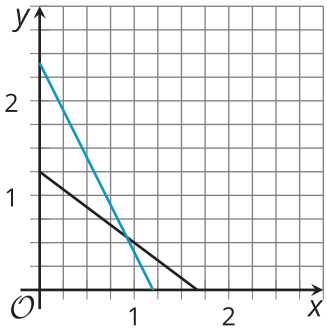
What do you notice? What do you wonder?



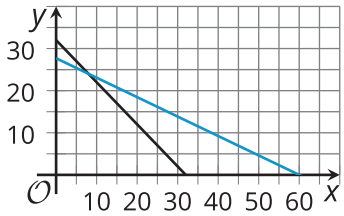
A club is selling snacks at a track meet. Oranges cost $1 each and protein bars cost $4 each. They sell a total of 100 items and collect $304.

12.2 Matching Graphs to Situations

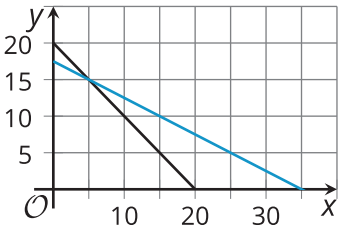
D



E



F



1. Match each graph to a situation.

   a. A restaurant has a total of 20 tables—round tables that seat 2 people and rectangular tables that seat 4 people. All 70 seats in the restaurant are occupied.

   b. A family buys a total of 32 tickets at a carnival. Ride tickets cost $1.50 each and food tickets cost $3.25 each. The family pays a total of $90 for the tickets.

   c. Tyler and Andre are shopping for snacks in bulk at the grocery store. Tyler pays $10 for 6 ounces of almonds and 8 ounces of raisins. Andre pays $12 for 10 ounces of almonds and 5 ounces of raisins.

2. Answer these questions about each situation:

   a. What do x and y represent in the situation?

   b. At what point do the lines intersect? What do the coordinates mean in this situation?

12.3 Ride Sharing among Friends

A ride sharing company offers two options: riding in small cars that can carry up to 3 passengers each, or riding in large vans that can carry up to 6 passengers each. A group of 27 people is going to use the ride-sharing service to take a trip. The trip in a small car costs $10, and the trip in a large van costs $15. The group ends up spending $80 total.

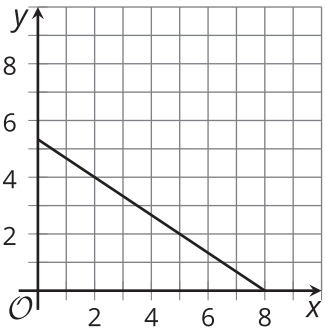
1. An equation that represents one of the constraints is $3x + 6y = a$.

   a. What is the value of a?

   b. What do x and y represent?

2. An equation that represents the other constraint is $cx + 15y = 80$. What is the value of c?

3. Here is a graph that represents one of the constraints. Which one? Explain how you know.



4. Sketch another line on the graph that represents the other constraint.

5. For each coordinate pair, describe its meaning in the situation, and decide whether it satisfies the constraint on total number of people, the constraint on cost, or neither.

   a. $(2, 4)$

   b. $(1, 4)$

   c. $(3, 2)$

6. At what point do the two lines intersect? What does this point mean in this situation?