Recognizing Proportional Relationships - Guided Lesson Explanation

Explanation#1

Step 1) we can do this two ways:

a) by testing for equivalent ratios in a table

b) determine whether the graph is a straight line through the origin.

Step 2 a) we can examine the numbers to determine that the time is the number of kilometers multiplied by 5. Each row shows proportional to the other amounts in the table; therefore, the table represents a proportional relationship.

4:20   = 1:5

6:30   = 1:5

8:40   = 1:5

10:50   = 1:5

Step 2 b) we can graph the relationships to determine if the two quantities are in a proportional relationship by interpreting the ordered pairs. If the amounts from the table above are graphed (distance, time), the pairs (4, 20), (6, 30), (8, 40) and (10, 50) will form a straight line through the origin (0 km, 0 hours), indicating that these pairs are in a proportional relationship.

So the table represents a proportional relationship.

Explanation#2

Step 1) we can solve this two ways

a) look for equivalent ratios in a table

b) observing a graph of the points to look for a straight line through the origin.

Step 2 a) we have to test the numbers to find out that the time is the number of cupcakes multiplied by 3, except for 8 cupcakes. The row with 8

cupcakes for 23 minutes is not proportional to the other numbers in the table; therefore, the table does not represent a proportional relationship.

5:15, 7:21, and 9:27 = 1:3

8:23 (does not reduce)

Step 2 b) Graph relationships to find out if two quantities are in a proportional relationship and to interpret the ordered pairs. If the numbers from the table above are graphed (number of cupcakes, time), the pairs (5, 15), (7, 21), and (9, 27) are forming a straight line through the origin (0 cupcakes, 0 minutes), indicates that these pairs are in a proportional relationship. The ordered pair (7, 21) means that 7 cupcakes will be cooked in 21 minutes. The ordered pair (8, 23) would not be on the line, which indicates that it is not proportional to the other pairs.

So the table does not represent a proportional relationship.

Explanation#3

Step 1) we calculate this in two ways a) look for equivalent ratios in a table b) or by finding out whether the graph is a straight line through the origin.

Step 2 a) If we reduce the proportions, they are all equal to 1:2. This indicates that they are in a proportional relationship.

3: 6, 4:8, 5:10, and 6:12 = 1:2

Step 2 b) we will make graph relationships to determine if two quantities are in a proportional relationship and to interpret the ordered pairs. If the amounts from the table above are graphed (number of flowers sold, days), the pairs (3, 6), (4, 8), and (5, 10) and (6, 12) will form a straight line through the origin (0 flowers, 0 days), that indicates that these pairs are in a proportional relationship.