

# Proportional and Nonproportional Relationships – L1-4

Two related quantities are **proportional** if they have a constant ratio between them. If two related quantities do not have a constant ratio, then they are **nonproportional**.

**Equivalent Ratios:** Ratios that have the same value.

## Example 1

The cost of one CD at a record store is \$12. Create a table to show the total cost for different numbers of CDs. Is the total cost proportional to the number of CDs purchased?

Number of CDs	1	2	3	4
Total Cost				

$$\frac{\text{Total Cost}}{\text{Number of CDs}} =$$

Divide the total cost for each by the number of CDs to find a ratio. Compare the ratios.

Since the ratios are \_\_\_\_\_, the total cost is \_\_\_\_\_ to the number of CDs purchased.

## Example 2

The cost to rent a lane at a bowling alley is \$9 per hour plus \$4 for shoe rental. Create a table to show the total cost for each hour a bowling lane is rented if one person rents shoes. Is the total cost proportional to the number of hours rented?

Number of Hours				
Total Cost				

$$\frac{\text{Total Cost}}{\text{Number of Hourse}} \rightarrow$$

Divide each cost by the number of hours.

Since the ratios are \_\_\_\_\_, the total cost is \_\_\_\_\_ to the number of hours rented with shoes.

## Example 3

A photo developer charges \$0.25 per photo developed. Is the total cost proportional to the number of photos developed? (Hint: Make a table)

**Example 4**

A soccer club has 15 players for every team, with the exception of two teams that have 16 players each. Is the number of players proportional to the number of teams?

**YOUR TURN**

For Exercises 1-2, use the table of values. Write the ratios in the table to show the relationship between each set of values.

1.

<b>Number of Hours</b>	1	2	3	4
<b>Total Amount Earned</b>	\$15	\$30	\$45	\$60
<b>Ratios</b>				

2.

<b>Number of Packages</b>	1	2	3	4
<b>Total Cost</b>	\$11	\$20	\$29	\$38
<b>Ratios</b>				

For Exercises 3-4 use the table of values. Write *proportional* or *nonproportional*.

3.

<b>Number of Hours</b>	1	2	3	4
<b>Total Amount Earned</b>	\$0.99	\$1.98	\$2.97	\$3.96

---

4.

<b>Number of Hours</b>	1	2	3	4
<b>Total Amount Earned</b>	\$17.25	\$35.50	\$50.75	\$70

---

5.

<b>Number of Hours</b>	1	2	3	4
<b>Number of Pages Read in Book</b>	37	73	109	145

---