

Spotting Proportional Relationships in Tables and Graphs

Grade 7 math · Test · Standards: 7.RP.A.2a, 7.RP.A.2b, 7.RP.A.2d

Name: _____ Date: _____ Class: _____

This test has 8 questions worth 20 points and fits 45 minutes. Show the ratios you compute and write a short reason for every yes or no decision. Give units when the problem has a context.

Standards: 7.RP.A.2a, 7.RP.A.2b, 7.RP.A.2d · **Level:** Grade 7

Time: 45 minutes · 8 questions · Total: 20 points · Calculator: as allowed by your teacher

Question 1 Is the Table Proportional (2 points)

Decide whether y is proportional to x . Justify, and give the constant of proportionality if there is one.

x	5	8	12
y	12	19.2	28.8

Table for Question 1.

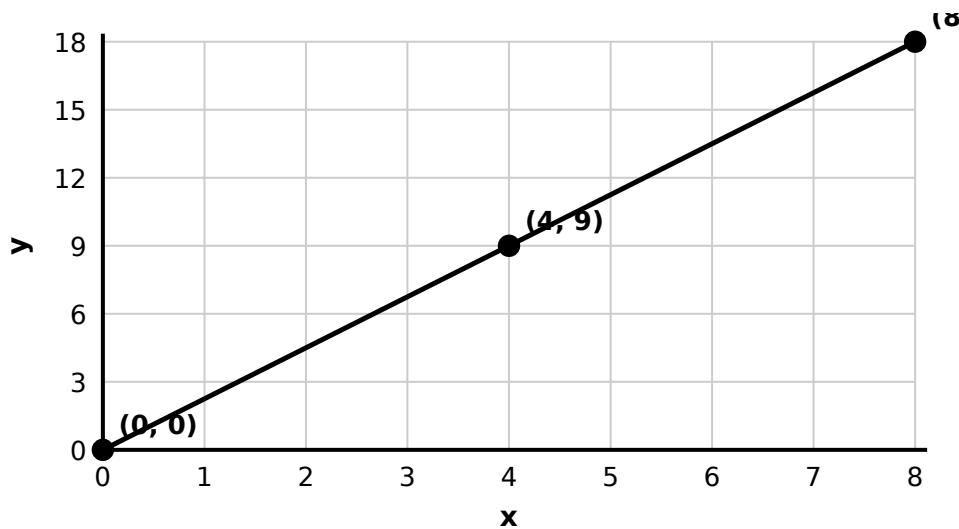
Question 2 Not Proportional Table (2 points)

The table lists a bus pass cost for different numbers of rides. Is the cost proportional to the rides? Explain.

Rides	1	2	3	5
Cost (dollars)	6	11	16	26

Question 3 Reading a Graph (3 points)

Use the graph.

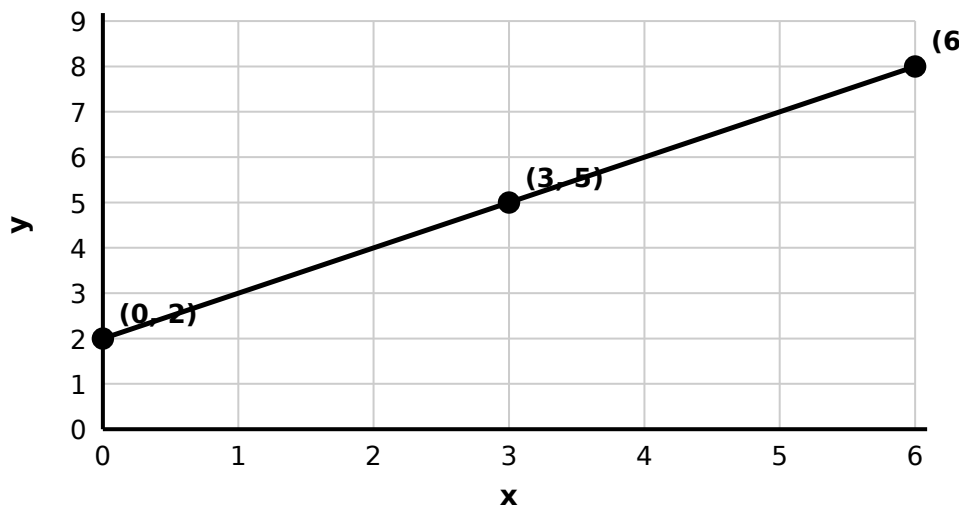


Graph for Question 3.

- Is the relationship proportional? Explain. (1 point)
- Find the constant of proportionality. (1 point)
- Explain what the point (0, 0) means if x is hours and y is dollars earned. (1 point)

Question 4 Explain the Error (2 points)

Liam says the graph is proportional because the points lie on a straight line. Explain his error.



Graph for Question 4.

Question 5 Copy Shop (3 points)

A copy shop charges \$0.09 per page with no other fees.

- Write the constant of proportionality and say what it means. (1 point)
- Find the cost of 250 pages. (1 point)
- Does the graph contain (0, 0)? Explain. (1 point)

Question 6 Three Situations (3 points)

For each situation, write proportional or not proportional and give one reason.

- a. A canoe rental costs \$12 per hour. (1 point)
- b. A plant is 5 inches tall and grows 1.5 inches each week. Height versus weeks. (1 point)
- c. A car drives at 48 miles per hour. Distance versus hours. (1 point)

Question 7 Hours and Miles with Fractions (3 points)

A hiker walks at a constant rate. The table shows the distance.

Hours	$\frac{3}{4}$	$\frac{3}{2}$	4
Miles	$\frac{9}{4}$	$\frac{9}{2}$	12

- a. Show that the relationship is proportional. (1 point)
- b. How far does the hiker walk in $6\frac{1}{2}$ hours? (1 point)
- c. How long does a 15-mile hike take? (1 point)

Question 8 Finding Missing Values (2 points)

The quantity y is proportional to x , and $y = 15$ when $x = 6$. Find k , then find y when $x = 10$.