

Grade 7 · Proportional Relationships · Test

Common Core 7.RP.A.2a, 7.RP.A.2b, 7.RP.A.2d · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

This test has 10 questions worth 20 points in total and should take about 45 minutes. Decide whether each relationship is proportional, justify your answers with ratios or the graph, and give the constant of proportionality with units where you can.

Test information

- **Grade:** Grade 7
- **Chapter:** Proportional Relationships
- **Common Core:** 7.RP.A.2a, 7.RP.A.2b, 7.RP.A.2d
- **Time:** 45 minutes
- **Total:** 20 points (Question 1: 2 pts; Question 2: 2 pts; Question 3: 2 pts; Question 4: 2 pts; Question 5: 2 pts; Question 6: 2 pts; Question 7: 2 pts; Question 8: 2 pts; Question 9: 2 pts; Question 10: 2 pts)

Question 1: Table A (2 points)

Is the relationship proportional? Justify your answer and give k if it exists.

x	2	3	5	8
y	5	7.5	12.5	20

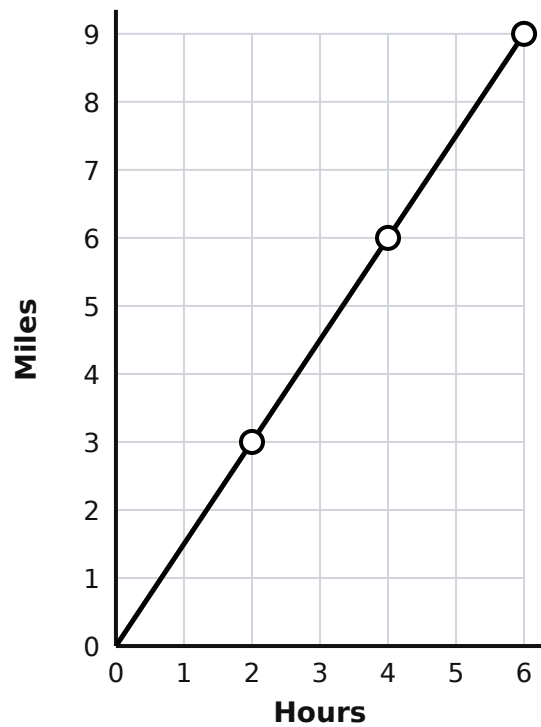
Question 2: Table B (2 points)

Is the relationship proportional? Justify your answer.

x	1	2	3	4
y	2	5	8	11

Question 3: Distance and time (2 points)

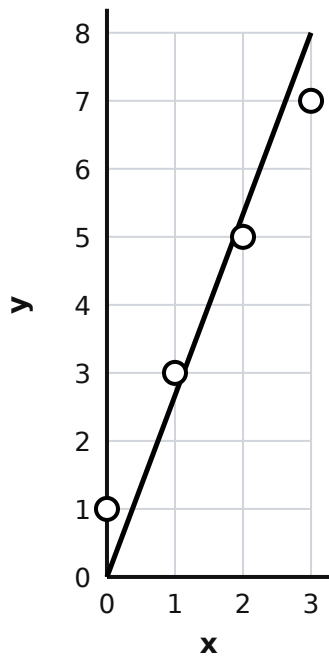
The graph shows the distance y in miles that Jamal bikes in x hours. Is the relationship proportional? Find the constant of proportionality with units.



Distance biked.

Question 4: Graph B (2 points)

Does this graph show a proportional relationship? Explain.



A straight line.

Question 5: Printer (2 points)

A printer prints 45 pages in 9 minutes at a steady rate.

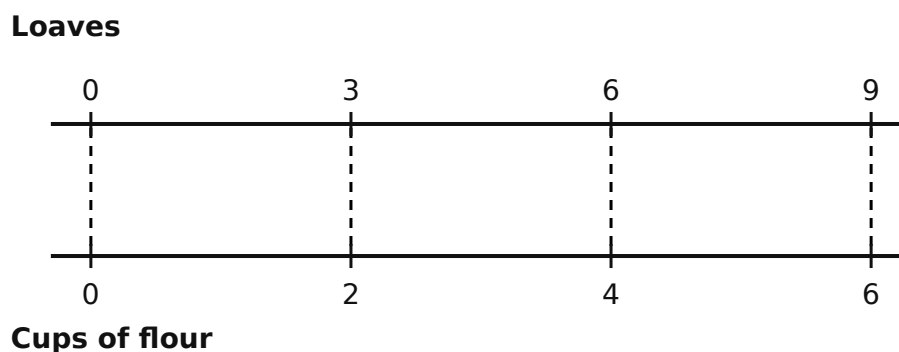
- Find the constant of proportionality with units. (1 point)
- Explain what the point $(1, \frac{1}{3})$ means in this situation. (1 point)

Question 6: Gym membership (2 points)

A gym charges a \$20 sign-up fee plus \$10 per month. The total cost is \$30 after 1 month, \$40 after 2 months and \$50 after 3 months. Is the total cost proportional to the number of months? Justify your answer.

Question 7: Flour and loaves (2 points)

The double number line shows loaves of bread and the cups of flour used. Write both constants of proportionality: loaves per cup, and cups per loaf.



Loaves and cups of flour.

Question 8: Missing values (2 points)

The table shows a proportional relationship. Find the missing values.

x	4	6	?	10
y	14	21	28	?

Question 9: Reading a point (2 points)

A proportional graph of cost y in dollars against x ounces of trail mix contains the point $(4, 10)$.

- Find the constant of proportionality. (1 point)
- Find the cost of 6 ounces. (1 point)

Question 10: Who is faster? (2 points)

Ethan walks 6 miles in 2 hours at a steady pace. Noah's walk is a proportional relationship whose graph contains the point $(5,12)$, where x is hours and y is miles. Who walks faster, and by how many miles per hour?