

Grade 7 · Equations of Proportional Relationships · Test

Common Core 7.RP.A.2c · mathovore.fr

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

This test covers writing and using equations of proportional relationships, standard 7.RP.A.2c. It has 8 questions worth 20 points in total. Calculators are not needed. Show all work, write equations in the form $y = kx$ where possible, and include units. Allow about 45 minutes.

Test information

- **Grade:** Grade 7
- **Chapter:** Equations of Proportional Relationships
- **Common Core:** 7.RP.A.2c
- **Time:** 45 minutes
- **Total:** 20 points (Question 1: 2 pts; Question 2: 2 pts; Question 3: 2 pts; Question 4: 3 pts; Question 5: 2 pts; Question 6: 3 pts; Question 7: 3 pts; Question 8: 3 pts)

Question 1: Constant from a table (2 points)

The table shows a proportional relationship.

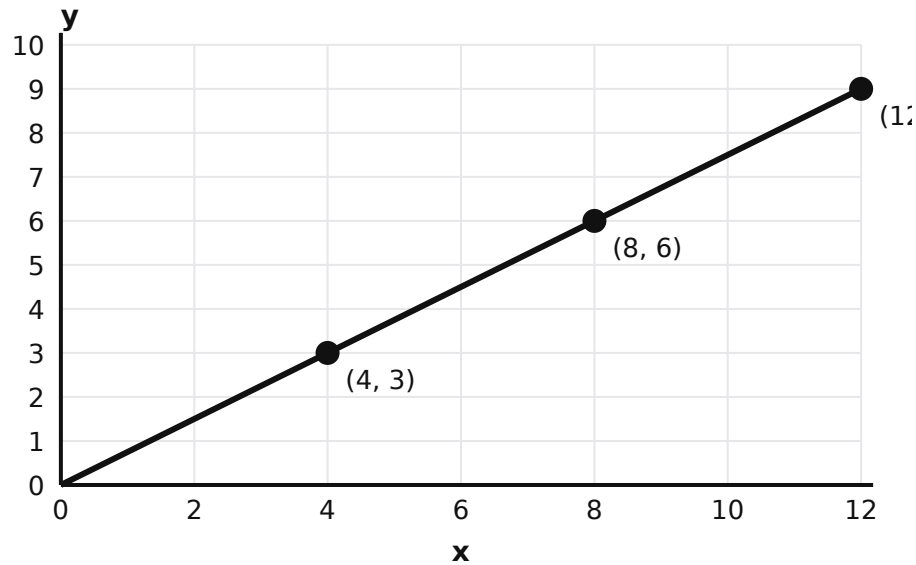
x	4	8	12
y	18	36	54

Table of values for x and y.

- Find the constant of proportionality. (1 point)
- Write an equation for y in terms of x . (1 point)

Question 2: Equation from a graph (2 points)

The graph shows a proportional relationship.



A line through the origin and the points (4, 3), (8, 6) and (12, 9).

- Find the constant of proportionality. (1 point)
- Write the equation of the line. (1 point)

Question 3: Notebooks (2 points)

Noah buys notebooks that cost \$1.85 each.

- Write an equation for the total cost t , in dollars, of n notebooks. (1 point)
- Find the cost of 12 notebooks. (1 point)

Question 4: Two tables (3 points)

Table A and Table B each show values of x and y .

Table A

x	2	4	6
y	7	14	21

Table B

x	1	2	3
y	4	7	10

Two tables of values.

- Decide whether each table shows a proportional relationship. Justify each answer. (2 points)
- Write an equation for the table that is proportional. (1 point)

Question 5: Hourly pay (2 points)

Aisha's pay is given by $p = 13.5h$, where h is the number of hours worked and p is her pay in dollars.

- Find her pay for 18 hours. (1 point)
- Find how many hours she must work to earn \$202.50. (1 point)

Question 6: Two printers (3 points)

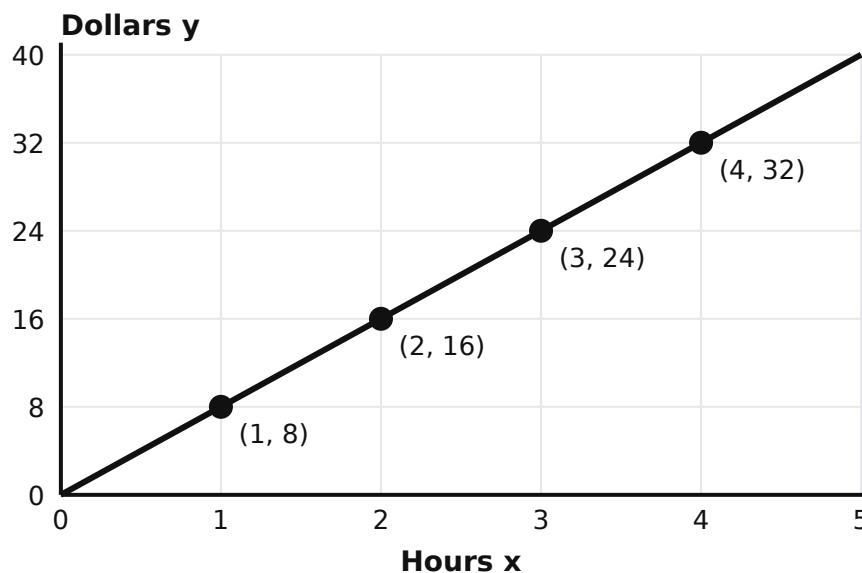
Printer A prints $p = 18m$ pages in m minutes. Printer B is described in the table.

Minutes	2	5	8
Pages	40	100	160

- Write an equation for the number of pages Printer B prints in m minutes. (1 point)
- Which printer prints faster? Explain. (1 point)
- How many more pages does the faster printer print in 15 minutes? (1 point)

Question 7: Dog walking (3 points)

The graph shows Ethan's earnings y , in dollars, for walking dogs x hours. His friend Mei earns $y = 7.5x$.



Ethan earns 8, 16, 24 and 32 dollars for 1, 2, 3 and 4 hours.

- Write the equation for Ethan's earnings. (1 point)
- Explain what the point (1,8) means in this situation. (1 point)
- Who earns more in 6 hours, and how much more? (1 point)

Question 8: Filling a tank (3 points)

A hose fills a tank at a constant rate. After 8 minutes it has delivered 30 gallons.

- Write an equation for the number of gallons g delivered after m minutes. (1 point)
- How many gallons are delivered in 25 minutes? (1 point)
- How long does it take to deliver 150 gallons? (1 point)