

Grade 8 · Proportional Relationships and Slope

· Test

Common Core 8.EE.B.5, 8.EE.B.6 · mathovore.fr

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

This test has eight questions worth 20 points in total and should take about 45 minutes. Show your work for every question. Calculators are not needed. The questions cover proportional relationships, slope, similar triangles, and equations of the form $y = mx + b$.

Test information

- **Grade:** Grade 8
- **Chapter:** Proportional Relationships and Slope
- **Common Core:** 8.EE.B.5, 8.EE.B.6
- **Time:** 45 minutes
- **Total:** 20 points (Question 1: 2 pts; Question 2: 3 pts; Question 3: 2 pts; Question 4: 3 pts; Question 5: 3 pts; Question 6: 2 pts; Question 7: 2 pts; Question 8: 3 pts)

Question 1: Unit rate from a table (2 points)

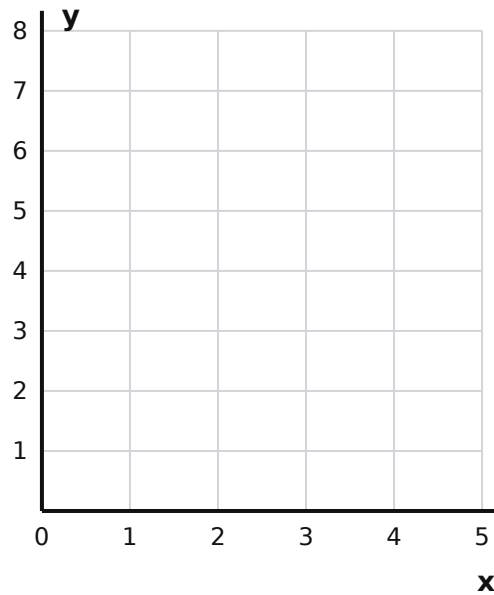
The table shows the cost of grapes. Write an equation for the cost y of x pounds, and find the cost of 11 pounds.

Pounds	3	5	8
Cost	\$13.50	\$22.50	\$36.00

Question 2: Graph a proportional equation (3 points)

Consider the equation $y = \frac{3}{2}x$.

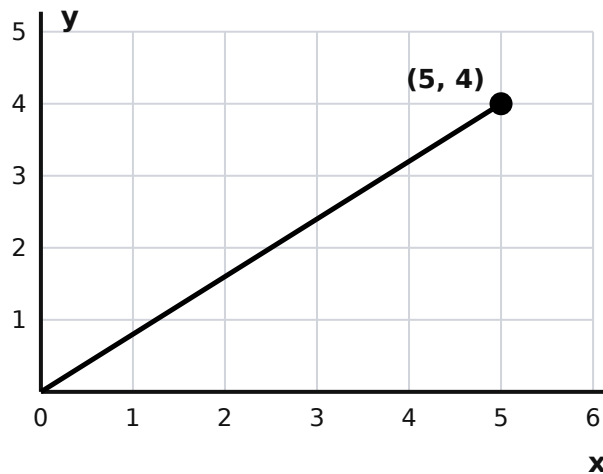
- Plot two points that satisfy the equation. (1 point)
- Draw the line. (1 point)
- State the slope of the line. (1 point)



Use this grid for question 2.

Question 3: Slope and equation from a graph (2 points)

Find the slope of the line shown and write its equation.

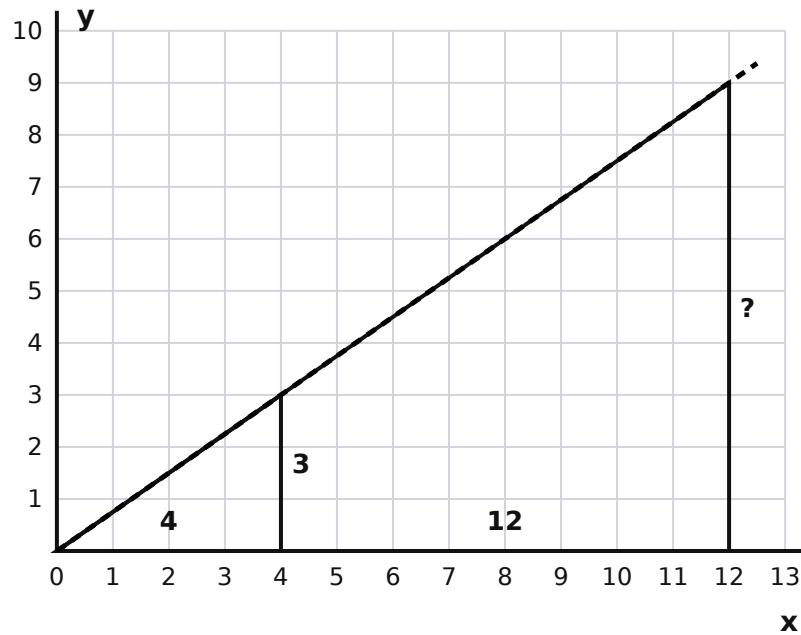


A proportional relationship.

Question 4: Similar triangles and slope (3 points)

Two right triangles are drawn under the same line, as shown.

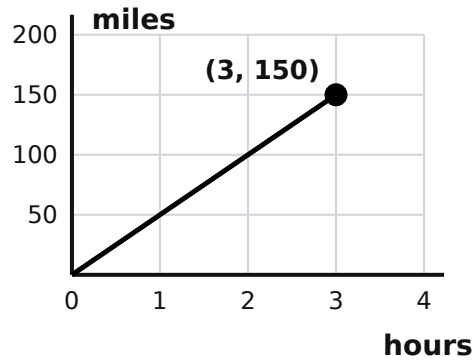
- Find the rise of the larger triangle. (1 point)
- Explain why the slope is the same for both triangles. (2 points)



Two right triangles with a common vertex at the origin.

Question 5: Compare two speeds (3 points)

Car A's trip is shown in the graph. Car B's distance is given by $y = 58x$, where x is hours. Which car is faster, and by how many miles per hour?



Car A: distance over time.

Question 6: Slope and intercept (2 points)

For the equation $y = -\frac{3}{4}x + 6$, state the slope and the y -intercept. Is the relationship proportional? Explain.

Question 7: Points to an equation (2 points)

A line passes through $(-3, 5)$ and $(1, -3)$. Find its slope and write its equation in the form $y = mx + b$.

Question 8: Streaming plan (3 points)

A movie site charges a \$5 sign-up fee plus \$3 for each movie rented.

- a. Write an equation for the total cost y of renting x movies. (1 point)
- b. Find the cost of 9 movies. (1 point)
- c. Ava spent \$41. How many movies did she rent? (1 point)