

Slope and Proportional Relationships on Graphs

Grade 8 math · Test · Standards: 8.EE.B.5, 8.EE.B.6

Name: _____ Date: _____ Class: _____

This test has 8 questions worth 20 points in total and should take about 45 minutes. Show your work, label units where they appear, and give slopes as fractions or decimals in simplest form.

Standards: 8.EE.B.5, 8.EE.B.6 · **Level:** Grade 8

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

Question 1 Proportional table (3 points)

Look at the table.

x	3	5	9
y	10.5	17.5	31.5

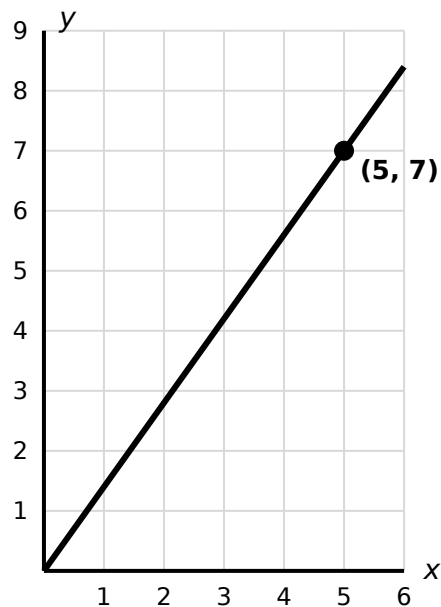
- Is the relationship proportional? Explain. (1 point)
- Find the constant of proportionality. (1 point)
- Write an equation. (1 point)

Question 2 Slope of a line (3 points)

- Find the slope of the line through $(-3, 4)$ and $(5, -12)$. (2 points)
- Does the line rise or fall from left to right? (1 point)

Question 3 Grapes at two stands (3 points)

Stand A's price for grapes is shown on the graph (x = pounds, y = dollars). Stand B charges $y = 1.55x$.

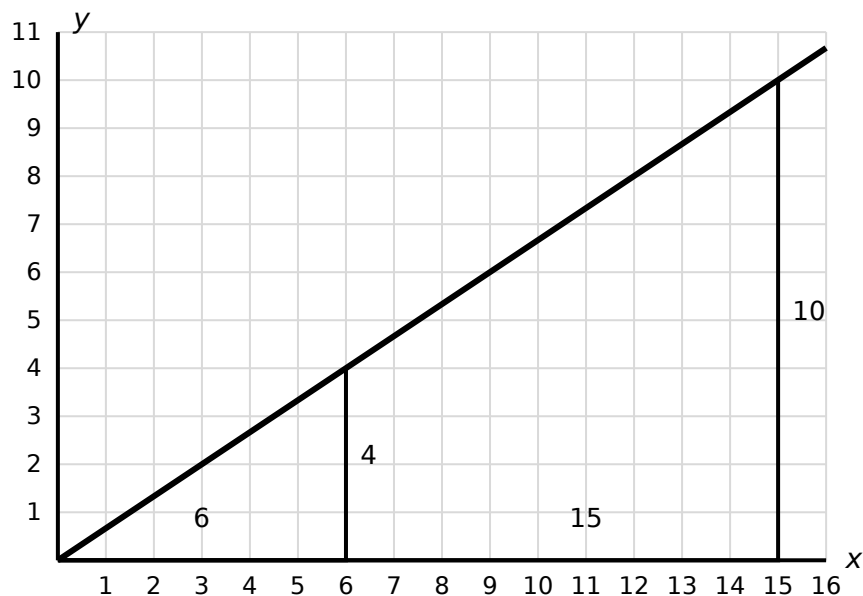


Stand A: cost in dollars.

- Find Stand A's price per pound. (1 point)
- Find Stand B's price per pound. (1 point)
- Which stand is cheaper? Explain. (1 point)

Question 4 Two slope triangles (3 points)

Two slope triangles are drawn on the same line.



Two slope triangles on one line.

- Find the slope using the small triangle. (1 point)
- Find the slope using the large triangle. (1 point)
- Explain why the two answers must agree. (1 point)

Question 5 Slope and intercept (2 points)

State the slope and the y-intercept of $y = -\frac{5}{8}x + 9$.

Question 6 Proportional equation (2 points)

A proportional relationship contains the point (12, 9). Write its equation and find y when $x = 20$.

Question 7 Plumber's fee (3 points)

A plumber charges a \$45 trip fee plus \$38 per hour.

- Write an equation for the total cost y after x hours. (1 point)
- Find the cost of a 3.5-hour job. (1 point)
- Is the relationship proportional? Explain. (1 point)

Question 8 Flat line (1 point)

Describe the graph of $y = 4$ and give its slope.