ALBERT

Name _____ Date _____

Proportional Relationships Worksheet

Grade 7 · Common Core 7.RP.A.2a

> Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.

Practice

Builds the skill step by step.

1. Is the relationship in the table proportional? Answer yes or no.

x	y
1	3
2	6
4	12

2. Is the relationship in the table proportional? Answer yes or no.

x	y
2	6
4	10
8	18

3. The graph of a proportional relationship is a straight line that...

   A. passes through the origin

   B. starts at (0, 1)

   C. curves upward

   D. is always horizontal

4. Tickets cost $8 each. Is the total cost proportional to the number of tickets? Answer yes or no.

5. A gym charges $20 to join plus $10 per month. Is the total cost proportional to the number of months? Answer yes or no.

6. Is the relationship in the table proportional? Answer yes or no.

Hours	Miles
2	5
4	10
6	15

7. Which set of points could be on the graph of a proportional relationship?

   A. (1, 4), (2, 8), (3, 12)

   B. (1, 4), (2, 6), (3, 8)

   C. (0, 2), (1, 4), (2, 6)

   D. (1, 1), (2, 4), (3, 9)

8. Is the relationship in the table proportional? Answer yes or no.

x	y
1	5
2	6
3	7

9. A graph is a straight line through (0, 0) and (5, 15). Is it proportional? Answer yes or no.

10. A graph is a straight line through (0, 3) and (2, 7). Is it proportional? Answer yes or no.

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On Level

Grade-level practice.

1. Does the table show a proportional relationship? If so, give the ratio y : x as a single number.

x	y
4	3
8	6
12	9

2. A taxi charges $3 plus $2 per mile. Is the fare proportional to the miles? Answer yes or no.

3. Which equation shows a proportional relationship?

   A. $y = 6x$

   B. $y = 6x + 1$

   C. $y = x + 6$

   D. $y = 6$

4. Is the relationship in the table proportional? Answer yes or no.

Pounds	Cost ($)
2	3.00
5	7.50
9	13.50

5. A plant is 4 cm tall and grows 2 cm per week. Is its height proportional to the number of weeks? Answer yes or no.

6. Is the relationship in the table proportional? Answer yes or no.

x	y
2	10
5	20
8	32

7. Points (2, 7) and (6, 21) are on the graph of a proportional relationship. Which point is also on the graph?

   A. (10, 35)

   B. (10, 31)

   C. (4, 12)

   D. (8, 25)

8. Gas costs $3.60 per gallon. Is the cost proportional to the number of gallons? Answer yes or no.

9. Is the relationship in the table proportional? Answer yes or no.

x	y
3	2
6	4
9	6
15	10

10. A savings account starts at $50 and grows by $10 each week. Is the balance proportional to the number of weeks? Answer yes or no.

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Challenge

Multi-step and word problems that stretch it.

1. In a table, x = 4 gives y = 10 and x = 6 gives y = 15. If the relationship is proportional, what is y when x = 14?

2. A student says y = 2x + 0 and y = 2x + 5 are both proportional because they have the same slope. Which is correct?

   A. Both are proportional.

   B. Only y = 2x + 0 is proportional.

   C. Only y = 2x + 5 is proportional.

   D. Neither is proportional.

3. A table shows (3, 12), (5, 20) and (8, k). For the relationship to be proportional, what must k be?

4. Two phone plans: Plan A costs $0.10 per minute. Plan B costs $15 plus $0.05 per minute. Which plan's cost is proportional to the minutes used?

5. Is the relationship between the side length of a square and its perimeter proportional? Answer yes or no.

6. Is the relationship between the side length of a square and its area proportional? Answer yes or no.

7. A recipe uses 3 cups of flour for 2 cups of sugar. Write the equation for flour f in terms of sugar s.

8. Which graph shows a proportional relationship?

   A. A straight line through (0, 2) and (4, 6)

   B. A curve through (0, 0) and (2, 4)

   C. A horizontal line at y = 3

   D. A straight line through (0, 0) and (4, 6)

9. A runner's distance d (miles) and time t (minutes) are proportional. She runs 3 miles in 27 minutes. How far does she run in 45 minutes?

10. Is the relationship proportional? x: 0, 2, 4, 6 and y: 0, 3, 7, 9. Answer yes or no.