School786
AN ONLINE SCHOOL

Name: Due Date: Teacher: Parent Sign:

1. A recipe uses 3 cups of flour for every 2 cups of sugar. How much flour is needed for 5 cups of sugar?

2. A printer prints 15 pages per minute. How many pages will it print in 14 minutes?

3. A video game costs $48 for 4 months of access. What is the unit price per month?

4. If 7 notebooks cost $21, is the price proportional to the number of notebooks? What is the unit rate?

5. A landscaper mows 9 lawns in 6 hours. At that rate, how many lawns can be mowed in 10 hours?

6. A pack of 8 batteries weighs 0.96 pounds. What is the weight per battery?

7. A taxi charges a flat fee of $2 plus $3 per mile. Does this represent a proportional relationship between cost and miles? Explain briefly.

8. A machine produces 360 widgets in 4 hours. How many widgets does it produce per hour?

9. Two quantities are proportional. When x = 5, y = 20. What is y when x = 13?

10. A bookstore sells 5 bookmarks for $4. How much would 12 bookmarks cost if the relationship is proportional?

Rates & proportional relationships – gas mileage (11-20)

11. A car gets 32 miles per gallon (mpg). How many gallons are needed to drive 400 miles?

12. A truck travels 270 miles using 12 gallons of diesel. What is its MPG?

13. If a car can travel 420 miles on 14 gallons, is the relationship between miles and gallons proportional? What is the unit rate?

14. A hybrid car uses 4 gallons to travel 180 miles. How many miles per gallon is that, and how many gallons to go 450 miles?

15. A road trip is 1,100 miles. If your car averages 25 mpg, how many gallons will you need? Round to the nearest tenth.

16. A delivery van uses 15 liters of fuel to go 180 kilometers. What is the fuel consumption in liters per 100 kilometers? (Give exact or decimal.)

17. A car's dashboard shows you used 12 gallons to drive 360 miles. Later, you used 8 gallons to drive 220 miles. Are these two trips consistent with the same MPG (proportional)? Show reasoning.

18. If a motorcycle gets 58 mpg, how many miles can it travel on 3.5 gallons?

19. Gas costs $3.79 per gallon. How much will it cost to fill 12 gallons?

20. A rental car charges $0.20 per mile. If you know your car averages 30 mpg, what is the cost of fuel per gallon equivalent in terms of cost per mile? (Interpretation: find cost to drive one mile if fuel cost per gallon is given as $X – here assume fuel cost is $3.60/gal and compare; instead, simpler: Given $0.20 per mile and 30 mpg, what would fuel cost per gallon be implied?)

Graphing proportional relationships: unit rate (21-30)

21. A proportional relationship has the unit rate 4. Write its equation in the form y = kx.

22. If y = 2.5x, what is the unit rate and what does it mean in words?

23. A graph of a proportional relationship passes through (3, 9). What is the unit rate? Write the equation y = kx.

24. Fill in the missing value in a proportional table: x: 1, 2, 3, 4; y: 3, ___, 9, 12.

25. A proportional relationship shows y = kx with k = -2. What is y when x = 7? Is this a typical eighth-grade proportional example? Briefly explain sign.

26. The unit rate of a proportional relationship is 0.75. What is the y-value when x = 16?

27. If a relationship is proportional and y = kx with k = $\frac{5}{8}$, what is y when x = 24?

28. A student plots points (1, 2.2), (2, 4.4), (3, 6.6). Is this proportional? What is the unit rate?

29. A proportional relationship doubles x and doubles y. If the point (6, 15) is on the graph, does that indicate the relationship is proportional? If yes, find unit rate; if no, explain.

30. The unit rate is 100 items per hour. Write the equation and find how many items after 2.5 hours.

Graphing proportional relationships from a table (31-40)

31. Determine whether the table represents a proportional relationship. If yes, give the unit rate and equation.

x: 2, 4, 6, 8

y: 5, 10, 15, 20

32. Table:

x: 1, 3, 5

y: 2, 6, 10

Is this proportional? If so, unit rate; if not, why?

33. Complete the table for a proportional relationship with unit rate 7:

x: 0, 1, 2, 3, 4

y: ___, ___, ___, ___, ___

34. Find the missing value if the table is proportional:

x: 3, 6, 9

y: 12, ___, 36

35. The table shows:

x: 4, 8, 12

y: 10, 20, 30

What is the constant of proportionality k (y = kx)? Graph points to confirm (list the points to plot).

36. Table:

x: 0, 2, 4, 6

y: 0, 5, 10, 15

Is this proportional? What is the unit rate?

37. A table shows x for hours worked and y for total pay. If the pay is proportional and someone earns $72 for 9 hours, fill out the table for 0, 2, 4, 6, 8, 9 hours.

38. Decide if proportional and find k:

x: 5, 10, 15

y: 25, 50, 70

39. A table relates miles (x) to gallons (y):

x: 60, 180, 240

y: 2, ___, 8

Find missing y if proportional.

40. Table:

x: 1.5, 3, 6

y: 4.5, ___, 18

Is this table proportional? Find the missing value.

Graphing proportional relationships from an equation (41-50)

41. Given y = 4x, list five points you would plot and state the slope/unit rate.

42. For $y = (\frac{3}{4})x$, calculate y for x = 0, 2, 4, 8 and state whether the relationship is proportional.

43. If y = kx and the graph passes through (5, 35), write the equation and find k.

44. Given the equation y = 0.2x, what is the meaning of 0.2 in context of a proportional graph? Give two x-values and corresponding y-values.

45. Write the equation for a proportional relationship where y = x/6. Then find y when x = 18.

46. The equation y = -3x is given. Are points from this equation proportional? Explain what the negative sign means and give y for x = 4.

47. Convert the verbal statement to a proportional equation: "y is directly proportional to x and y equals 10 when x equals 2."

48. Given the equation $y = (\frac{5}{9})x$, if x represents grams of sugar and y represents teaspoons needed, how many teaspoons for 90 grams? Also state unit rate (teaspoons per gram).

49. If y = kx and k equals the unit rate 12, what is the equation? If x is hours and y is pages typed, how many pages in 3.5 hours?

50. A proportional equation is y = 0.625x. If a point (16, y) lies on the graph, find y. If you graph this, what two points would you use to show the slope clearly?