



Name: _____

Due Date: _____

Teacher: _____

Parent Sign: _____

Math Worksheet for 8th Grade

Graphing proportional relationships

Rates & proportional relationships — examples

1. If 3 apples cost \$6, what is the cost of 1 apple?
2. If 5 pens cost \$7.50, what is the cost per pen?
3. If 4 shirts cost \$48, what is the unit price per shirt?
4. If 7 notebooks cost \$14, how much do 10 notebooks cost?
5. If $a:b = 2:3$ and $a = 8$, what is b ?
6. If 12 ounces of juice cost \$3.00, what is the price per ounce?
7. If 9 tickets cost \$54, what is the price of one ticket?
8. If 2 pounds of fruit cost \$5, how much do 7 pounds cost?
9. If 15 items cost \$45, how many items can you buy for \$60?
10. If printing 250 pages costs \$5.00, what is the cost per page?

Rates & proportional relationships — gas mileage

11. A car drives 300 miles on 10 gallons. What is its miles per gallon (mpg)?
12. A car gets 25 mpg. How far can it go on 12 gallons?
13. A car travels 495 miles on 18 gallons. What is its mpg?
14. A car uses 4 gallons to drive 140 miles. What is its mpg?
15. If a trip is 420 miles and the car gets 30 mpg, how many gallons are needed?
16. A car travels 360 miles on 9 gallons. How many miles can it go on 15 gallons?
17. If a car gets 22 mpg, how many gallons are needed for a 550-mile trip?
18. A car uses 6 gallons to travel 180 miles. What is its mpg?
19. A car goes 275 miles on 11 gallons. How many gallons are needed to go 500 miles?
20. A car that gets 20 mpg doubles its efficiency. How far can it go on 8 gallons now?

Graphing proportional relationships — unit rate

21. For the relationship $y = 4x$, what is the unit rate (slope)?
22. For $y = 0.5x$, what is the unit rate?
23. For $y = (\frac{3}{2})x$, what is the unit rate?
24. If y is proportional to x and $y = 24$ when $x = 6$, what is the unit rate k in $y = kx$?
25. If y is proportional to x and $y = 9$ when $x = 3$, what is the unit rate?
26. For $y = -2x$, what is the unit rate?
27. If a proportional relationship has the point $(2, 5)$, what is the unit rate k ?
28. For $y = (\frac{7}{4})x$, what is the unit rate?
29. If $y = kx$ and $y = 0.75$ when $x = 0.25$, what is k ?



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30. If y is proportional to x and $y = 18$ when $x = 3$, what is the unit rate?

Graphing proportional relationships — from a table

31. Table: $x = 1, 2, 3$; $y = 2, 4, ?$. Find the missing y .

32. Table: $x = 2, 4, 6$; $y = 3, 6, ?$. Find the missing y .

33. Table: $x = 5, 10, 15$; $y = 20, ?, 60$. Find the missing y .

34. Table: $x = 0, 1, 2$; $y = 0, 6, ?$. Find the missing y .

35. Table: $x = 3, 6, 9$; $y = 6, 12, ?$. Find the missing y .

36. Table: $x = 4, 8$; $y = 10, ?$. Find the missing y .

37. Table: $x = 1, 3, 5$; $y = 2, 6, ?$. Find the missing y .

38. Table: $x = 2, 5$; $y = 8, ?$. Find the missing y .

39. Table: $(x, y) = (0, 0), (4, 12), (6, ?)$. Find the missing y .

40. Table: $x = 7, ?, 21$; $y = 14, ?, 42$. Fill both missing x and y assuming proportionality.

Graphing proportional relationships — from an equation

41. Is $y = 5x$ a proportional relationship? If yes, what is the unit rate?

42. Is $y = 5x + 2$ a proportional relationship? (Yes or No)

43. For $y = (\frac{2}{3})x$, find y when $x = 9$.

44. For $y = 4x$, find x when $y = 24$.

45. For $y = kx$, if $y = 15$ when $x = 3$, find k .

46. For $y = 0.2x$, find y when $x = 50$.

47. If $y = kx$ and $x = 8$ gives $y = 20$, find k .

48. For $y = -3x$, find y when $x = 4$.

49. For $y = (\frac{7}{10})x$, find x when $y = 21$.

50. For $y = kx$ with $k = 0.75$, find y when $x = 100$.