



Proportional Relationships

Name: _____

Grade: 7

Date: _____

Identify, write, and solve proportions. Use tables, graphs, and unit rates. Show reasoning for each step.

Part 1 · Ratio & Proportion Basics

BASICS

1. Write 3 forms for ratio 7 to 9.

2. Is $15/20$ equivalent to $3/4$? (yes/no)

3. Solve: $5/8 = x/32$. $x =$ _____

4. If $12/18 = 2/3$, what is the scale factor?

5. Write a proportion for 4 pens cost \$6.

6. If $a/b = c/d$, cross-multiply to get _____.

Part 2 · Tables & Graphs

TABLES

7. Complete table: If 3 books cost \$12, how much for 5 books?

8. Graph: If $y = 2x$, what is y when $x = 7$?

9. Table: If 8 apples cost \$10, what is cost for 12 apples?

10. Graph: If $y = 3x$, what is x when $y = 21$?

11. Table: If 5 shirts cost \$45, what is cost for 8 shirts?

12. Graph: If $y = 0.5x$, what is y when $x = 20$?

Part 3 · Unit Rate & Scaling

UNIT RATE

13. \$36 for 9 notebooks. Unit price?

14. 120 miles in 3 hours. Speed?

15. 48 pages in 6 days. Pages/day?

16. \$2.40 for 8 eggs. Price per egg?

17. 3.6 L juice serves 12 cups. L per cup?

18. 60 problems in 40 min. Problems/min?

Part 4 · Proportion Word Problems

WORD

19. A recipe uses 2 cups sugar for 5 cups flour. How much sugar for 20 cups flour?

20. If 3 blue paint to 2 white, total 25 cans, how many blue?

21. Fruit punch 4 juice to 3 water. If juice 28, how much water?

22. Trail mix 5 nuts to 2 raisins. Nuts 30, total mix units?

23. Seeds 7 sprout to 4 fail, total 143 sprouted. How many failed?

24. Class ratio girls:boys 11:9, total 200 students. Boys?

Part 5 · Error Analysis ERROR

25. Error: Said $6/10$ simplifies to $3/4$. Correct & mistake?

26. Error: \$36 for 9 items unit rate is $36 \times 9 = 324$. Correct & why?

27. Error: Claimed $4/7 = 6/10$ because +2 both. True? Why?

Part 6 · Challenge & Reflection CHALLENGE

28. Scale 7:11 to sum 108. Scaled ratio?

29. Two ratios equivalent? 9:15 and 54:92 (yes/no)

30. Unit rate better deal: 8 oz for \$2.00 vs 14 oz for \$3.22?

(31. Ratio $a:b = 5:8$. If $a=60$, $b=?$ If $b=200$, $a=?$

(32. Simplify $132:180$ to lowest terms.

(33. Reflection: Most helpful strategy? _____

Answer Key

1. 7:9, 7 to 9, $7/9$
2. yes
3. 20
4. divide by 6
5. $4/6 = 2/3$
6. $ad = bc$
7. \$20
8. 14
9. \$15
10. 7
11. \$72
12. 10
13. \$4
14. 40
15. 8
16. \$0.30
17. 0.3
18. 1.5
19. 8
20. 15
21. 21
22. 42
23. 99
24. 90
25. $3/5$ / divided incorrectly
26. \$4 / divide not multiply
27. No / additive change not multiplicative
28. 42:66
29. No
30. 14 oz (\$0.23/oz) better than 8 oz (\$0.25/oz)
31. 96 ; 125
32. 22:30
33. Varies

Accept equivalent simplified forms. Reflection varies.