

11. Mixed Application — Worksheet C

Name: _____ **Class:** _____ **Date:** _____

The chapter title will not tell you which method to use. First name the relationship. Then solve and check.

1. A school buys folders for \$2.40 each. How much do 15 folders cost? State the unit rate and write an equation.

2. A fruit drink uses 2 cups of concentrate for 7 cups of water. How much concentrate is needed for 21 cups of water if the same relationship is used?

3. A taxi charges a \$5 starting fee plus \$2 per kilometre. Complete the table for 0, 1, 2, and 3 kilometres. Is the relationship proportional? Explain.

4. A student says that a table is proportional because its outputs increase by 4.

x	1	2	3	4
y	9	13	17	21

Is the student correct? Use two pieces of evidence.

5. Store A sells 4 kilograms of rice for \$14. Store B sells 6 kilograms for \$19. Which store has the lower unit price? Show both unit rates.

6. A map uses the scale 1 cm = 8 km. How far in real life is 4.5 cm? Explain why this is a proportional relationship.

7. A graph is a straight line through (0, 5). Is the relationship proportional? Explain what the 5 may represent.

8. The table below represents a relationship. Find the missing output and decide whether the relationship is proportional.

x	0	1	2	5
y	0	3	—	15

9. Two students solve the same problem.

Four pens cost \$10. Student A finds $\$10 \div 4 = \2.50 per pen, then multiplies by 9. Student B writes $4:10 = 9:15$ because the numbers increase by 5.

Who is correct? Explain the error in the incorrect solution and find the cost of 9 pens.

10. Write a real-world situation that is proportional at first but becomes non-proportional because a fixed fee is added. Explain where the proportional model stops working.

11. **Reasoning challenge:** A relationship has the table below.

x	0	1	2	3
y	0	4	8	12

Write three different representations of the relationship. Then write one sentence explaining why all three representations agree.

12. **Create and critique:** Create two tables with the same inputs. Make one proportional and one non-proportional. Make both outputs increase. Explain how a classmate could tell the difference.

13. **Fractional rate:** A runner covers $\frac{1}{4}$ mile every $\frac{1}{2}$ hour at a steady pace. What is the unit rate in miles per hour? At that pace, how far does the runner travel in 1 hour? Is this relationship proportional? Explain.

14. **What matters and what doesn't:** Mia is 13 years old and buys notebooks that cost \$3 each. She buys 6 notebooks and pays with a \$20 bill. How much did the notebooks cost in total? Which pieces of information in this problem were not needed to answer it?

15. **Reconstruct the situation:** The equation $C = 4.5n$ represents a proportional relationship. Write a real-world situation this equation could describe. Explain what the number 4.5 means in your situation, including units.
