Constant of Proportionality: Tables and Graphs Worksheet Plan

Original tasks 1, 2, 3, 4 / complete keys

Task 1

Table: x = 3, y = 12; x = 5, y = 20; x = 8, y = 32. Find k and state the unit rate if x is bags and y is apples.

Answer: k = 4 apples per bag.

Reason: 12 divided by 3 equals 4; 20 divided by 5 equals 4; 32 divided by 8 equals 4. The ratio is constant.

Check: Substitute (3,12) into y = 4x: 12 = 4 times 3, true. Substitute (8,32): 32 = 4 times 8, true.

Task 2

A proportional line passes through the origin and the point (4, 10). Find k and write a unit-rate statement if x is minutes and y is liters.

Answer: k = 2.5 liters per minute.

Reason: Vertical change is 10, horizontal change is 4, so k = 10/4 = 2.5. The line passes through the origin, so the ratio is constant.

Check: The point (1, 2.5) should lie on the line. Substitute (4,10) into y = 2.5x: 10 = 2.5 times 4, true.

Task 3

Table: x = 6, y = 9; x = 10, y = 15; x = 14, y = 21. Find k and state the unit rate if x is trays and y is muffins.

Answer: k = 1.5 muffins per tray.

Reason: 9 divided by 6 equals 1.5; 15 divided by 10 equals 1.5; 21 divided by 14 equals 1.5. The quotient is constant.

Check: Substitute (10,15) into y = 1.5x: 15 = 1.5 times 10, true. Substitute (14,21): 21 = 1.5 times 14, true.

Task 4

A proportional line passes through the origin and the point (5, 2). Find k and write a unit-rate statement if x is hours and y is kilometers.

Answer: k = 0.4 kilometers per hour.

Reason: Vertical change is 2, horizontal change is 5, so k = 2/5 = 0.4. The line passes through the origin.

Check: The point (1, 0.4) should lie on the line. Substitute (5,2) into y = 0.4x: 2 = 0.4 times 5, true.

Constant of Proportionality: Tables and Graphs Worksheet Plan

Source rubric / reflection

- [ ] Computes k as y divided by x using at least one correct pair.
- [ ] Confirms k with a second pair or graph point.
- [ ] Simplifies the value of k correctly.
- [ ] Writes a unit-rate statement with correct quantity order and units.
- [ ] Shows substitution into y = kx as a check.

Reflection: What did you check, what did you change, and what will you try next?