

Does the recipe stay the same?

Grade 7 | Math | Student investigation | Name: _____

Compare cocoa (tablespoons) with milk (cups). For each table, calculate cocoa divided by milk for all three pairs. Decide whether each table keeps one constant recipe. Record your calculations, not just yes or no.

TABLE	MILK / CUPS	COCOA / TBSP
A	2, 4, 6	3, 6, 9
B	2, 4, 6	3, 5, 7
C	1, 3, 5	2, 6, 10
D	1, 2, 4	2, 4, 7

A: _____

B: _____

C: _____

D: _____

Which TWO tables each show a constant recipe? Do those two tables have the SAME recipe? Explain the difference.

Predict the cocoa needed for 8 cups of milk using Table A: _____

Explain why "both columns increase" is not enough evidence:

New context: A truck travels 90 miles on 4 gallons and 135 miles on 6 gallons. Under a constant-rate model, how far would it travel on 10 gallons?

Exit ticket: A job pays \$12 for 1 hour, \$36 for 3 hours and \$65 for 5 hours. Is the pay proportional to the hours? Support your answer with a calculation.

Ratios: answer key

Grade 7 | Math | Teacher copy

Use this sheet during Explore in the ratios example. Students need division or fraction comparison; allow a calculator when arithmetic would hide the reasoning.

Four tables, two constant recipes

A: $3/2 = 6/4 = 9/6 = 1.5$ tablespoons per cup. Constant.

B: $3/2 = 1.5$; $5/4 = 1.25$; $7/6$ is about 1.167. Not constant.

C: $2/1 = 6/3 = 10/5 = 2$. Constant.

D: $2/1 = 4/2 = 2$, but $7/4 = 1.75$. Not constant.

A and C are each proportional, but they are different recipes: their constants are 1.5 and 2. Do not describe them as the same flavor as each other.

For A, 8 cups need 12 tablespoons: $8 \times 1.5 = 12$. Increasing together is insufficient: B and D increase, but their ratios change.

Transfer and exit ticket

Truck: $90/4 = 135/6 = 22.5$ miles per gallon; 10 gallons gives 225 miles within the stated model. This is a mathematical model, not a prediction of actual fuel consumption.

Exit: $12/1 = 36/3 = 12$, but $65/5 = 13$. The pay is not proportional across all three pairs. A constant \$12/hour model would give \$60 for 5 hours.

Teaching response

While circulating, ask "What stays the same?" before supplying the word proportional. During Explain, compare a correct ratio argument with the tempting constant-addition argument for Table B.

Sort exit responses: constant ratio identified and checked: transfer task; correct verdict without calculations: justify with two pairs; proportional because both increase: compare A and B using double number lines.

Access: supply a two-column ratio table with one row started. Extension: construct a table that looks proportional for two pairs but fails at a third, then explain why.

Source: the published DraftMyLesson ratios pack, retained separately as 5e-lesson-plan-practice.pdf. This edition changes the visual presentation, not the data or answers.