

Ratio Reality Check

Test whether a constant rate connects two quantities.

GRADE 7 • NY-7.RP.2.a

NY-7.RP.2.a "Decide whether two quantities are in a proportional relationship."

NAME _____

DATE _____

CHECK THE RATIOS

Divide the second quantity by the first quantity for each pair. If every ratio is the same, the quantities are proportional. If even one ratio is different, they are not proportional.

WORKED EXAMPLE

Are the pairs (3, 12) and (5, 20) proportional?

1. Find the first ratio: $12/3 = 4$.
2. Find the second ratio: $20/5 = 4$.
3. The ratios match, so the relationship is proportional.

Answer: Yes, $y = 4x$.

PRACTICE 6 problems

- 1** Are the pairs (4, 18) and (6, 27) proportional? Write the two ratios.

ANSWER _____

- 2** The pairs are (2, 8), (4, 16), and (7, 28). Are the quantities proportional?

ANSWER _____

- 3** Eight concert tickets cost \$56. Eleven concert tickets cost \$77. Are the number of tickets and total cost proportional?

ANSWER _____

- 4** Are the pairs (1, 9), (2, 18), and (4, 35) proportional?

ANSWER _____

- 5** The pairs are (6, 24), (9, 36), and (13, 52). Are the quantities proportional?

ANSWER _____

- 6** Are the pairs (10, 7), (14, 10), and (18, 13) proportional?

ANSWER _____

APPLY IT Show your work

- 1** The game club buys digital art packs for its showcase. Use the table to decide whether the number of packs and total cost are proportional. Explain your reasoning.

DIGITAL ART PACKS

Packs	Total cost
1	\$6
4	\$24
7	\$42

ANSWER _____

- 2** A video creator tracks the data used to upload clips. Two clips use 8 MB, six clips use 18 MB, and eight clips use 24 MB. Are the number of clips and data used proportional? Explain your reasoning.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A club member says these pairs are proportional: $(2, 14)$, $(7, 49)$, and $(11, 78)$. Is the claim correct? Explain using ratios.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Are the pairs (4, 18) and (6, 27) proportional? Write the two ratios.	Yes; $18/4 = 9/2$ and $27/6 = 9/2$.
2	The pairs are (2, 8), (4, 16), and (7, 28). Are the quantities proportional?	Yes.
3	Eight concert tickets cost \$56. Eleven concert tickets cost \$77. Are the number of tickets and total cost proportional?	Yes.
4	Are the pairs (1, 9), (2, 18), and (4, 35) proportional?	No.
5	The pairs are (6, 24), (9, 36), and (13, 52). Are the quantities proportional?	Yes.
6	Are the pairs (10, 7), (14, 10), and (18, 13) proportional?	No.

PART 2 • APPLY IT

- Yes. Each pack costs \$6, so the cost per pack is constant.** Divide each total cost by the number of packs. Each quotient is 6, so the relationship is proportional.
- No. The first rate is $8/2 = 4$ MB per clip, but the other rates are 3 MB per clip.** Compare data per clip for each pair. Since $8/2$ differs from $18/6$ and $24/8$, the relationship is not proportional.

CHALLENGE

No. $14/2 = 7$ and $49/7 = 7$, but $78/11$ is not 7, so the ratios are not all the same.

Accept equivalent ratio forms, such as $18/4 = 9/2$. For explanations, students should identify a constant unit rate for proportional relationships or identify at least two unequal ratios for nonproportional relationships.