

Ratio Route

Write proportions to find missing values.

GRADE 7 • 7.CE.2.b

7.CE.2.b "Write and solve a proportion that represents a proportional relationship between two quantities to find a missing value, including problems in context."

NAME _____

DATE _____

EQUAL RATIOS

In a proportional relationship, two matching ratios are equal. Keep the quantities in the same order in both fractions, then cross multiply and solve for x .

WORKED EXAMPLE

A printer makes 4 posters in 7 minutes. At the same rate, how many posters can it make in 21 minutes?

1. Write a proportion: $4/7 = x/21$.
2. Cross multiply: $4 \times 21 = 7x$.
3. Multiply: $84 = 7x$.
4. Divide by 7: $x = 12$.

Answer: 12 posters

PRACTICE 6 problems

- 1** 3 notebooks cost \$5. At the same rate, 30 notebooks cost \$ x . Write and solve a proportion.

ANSWER _____

- 2** A game gives 9 points for 24 coins. How many points does it give for 16 coins? Write and solve a proportion.

ANSWER _____

- 3** 8 tickets cost \$11. How much do 40 tickets cost? Write and solve a proportion.

ANSWER _____

- 4** 14 smoothies use 18 cups of yogurt. At the same rate, how many smoothies use 36 cups of yogurt? Write and solve a proportion.

ANSWER _____

- 5** A machine packs 6 boxes in 15 minutes. At the same rate, how many boxes can it pack in 35 minutes? Write and solve a proportion.

ANSWER _____

- 6** A paint mix uses 5 blue drops for every 9 white drops. If 25 blue drops are used, how many white drops are needed? Write and solve a proportion.

ANSWER _____

APPLY IT Show your work

- 1** A music app downloads 18 songs in 3 minutes at a steady rate. How many songs will it download in 8 minutes? Write and solve a proportion.

WORK SPACE

ANSWER _____

- 2** A club prints 15 stickers for \$6. At the same cost per sticker, how much will 35 stickers cost? Write and solve a proportion.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A theater sells 15 student tickets for \$18. A club has \$75 and must buy whole tickets. At the same price per ticket, what is the greatest number of tickets the club can buy, and how much money will be left? Write and solve a proportion.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	3 notebooks cost \$5. At the same rate, 30 notebooks cost \$x. Write and solve a proportion.	x = 50
2	A game gives 9 points for 24 coins. How many points does it give for 16 coins? Write and solve a proportion.	6 points
3	8 tickets cost \$11. How much do 40 tickets cost? Write and solve a proportion.	\$55
4	14 smoothies use 18 cups of yogurt. At the same rate, how many smoothies use 36 cups of yogurt? Write and solve a proportion.	28 smoothies
5	A machine packs 6 boxes in 15 minutes. At the same rate, how many boxes can it pack in 35 minutes? Write and solve a proportion.	14 boxes
6	A paint mix uses 5 blue drops for every 9 white drops. If 25 blue drops are used, how many white drops are needed? Write and solve a proportion.	45 white drops

PART 2 • APPLY IT

1. **48 songs** Use $18/3 = x/8$. Cross multiply to get $3x = 144$, so $x = 48$.
2. **\$14** Use $15/6 = 35/x$. Cross multiply to get $15x = 210$, so $x = 14$.

CHALLENGE**62 tickets, with \$0.60 left**

Accept equivalent proportions when matching quantities stay in the same order. For the challenge, accept 62.5 as the proportional result, but the final answer must be 62 whole tickets and \$0.60 left.