

Ratios and Rate Reasoning: math practice, Grade 6 – download the PDF

21 problems graded by difficulty (★ easy, ★★ medium, ★★★ hard). Try first, without looking at the solutions!

1 Writing ratios

★ ★ ★

A pet shelter has 5 cats and 7 dogs. Write each ratio in simplest form using a colon: (a) cats to dogs, (b) dogs to cats, (c) cats to all animals.

2 A winning season

★ ★ ★

A basketball team won 9 games and lost 3. Write the ratio of wins to losses and simplify it. What does it tell you?

3 Missing numbers

★ ★ ★

Find the missing number: (a) $2 : 3 = 8 : \square$ (b) $2 : 3 = \square : 30$ (c) $5 : 4 = 35 : \square$.

4 Simplest form

★ ★ ★

Write each ratio in simplest form: (a) $18 : 24$ (b) $45 : 20$ (c) $16 : 40$.

5 Typing speed



Noah types 120 words in 4 minutes. What is his unit rate in words per minute?

6 True or false?



Decide whether each pair is equivalent and explain. (a) $4 : 6$ and $10 : 15$ (b) $6 : 9$ and $8 : 10$

7 Notebook table



Four notebooks cost \$6. Complete the ratio table, then find the cost of 20 notebooks.

Notebooks	4	8	12	16	20
Cost (\$)	6	?	?	?	?

8 Smoothie recipe



A smoothie uses 3 cups of strawberries for every 2 cups of banana slices. How many cups of banana slices go with 12 cups of strawberries?

9 Better deal at the store



Store A sells 12 oz of trail mix for \$3.00. Store B sells 20 oz for \$4.40. Which store has the lower unit price?

10 A cyclist's speed



A cyclist rides 36 miles in 3 hours at a steady pace. (a) What is her speed in miles per hour? (b) How far does she ride in 5 hours?

11 Printer on a double number line

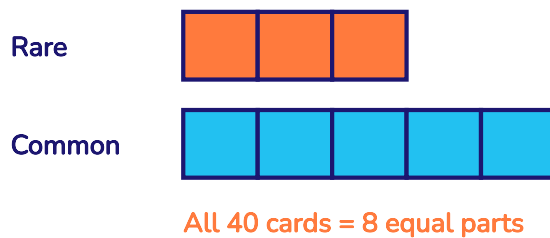


A printer prints 12 pages in 3 minutes. Draw or imagine a double number line with minutes on top and pages below. (a) How many pages does it print in 9 minutes? (b) How many minutes does it need for 60 pages?

12 Trading cards



A collection of 40 trading cards has rare and common cards in the ratio **3 : 5**, as in the tape diagram. How many cards of each kind are there?



13 Inches and centimeters



Use the fact that 1 inch is 2.54 centimeters. Complete the table, then find how many centimeters are in 3 feet (1 foot = 12 inches).

Inches	1	5	10	20
Centimeters	2.54	?	?	?

14 Which paint is bluer?

Mix A uses 3 cans of blue paint and 5 cans of white. Mix B uses 4 cans of blue and 6 cans of white. Which mix is the bluer one?

15 A new student group

A class of 28 students has boys and girls in the ratio **4 : 3**. (a) How many boys and how many girls are there? (b) Four more girls join the class. What is the new ratio of boys to girls in simplest form?

16 Fuel economy

Car A drives 150 miles on 5 gallons of gas. Car B drives 210 miles on 6 gallons. (a) Which car goes farther on one gallon? (b) Gas costs \$3.60 per gallon. How much does Car B's gas cost for a 420-mile trip?

17 Mixing green paint

Green paint is made with 2 parts yellow and 3 parts blue. A painter needs 45 liters of green paint. How many liters of each color are needed?

18 A fast train

A train travels 270 kilometers in 3 hours at a constant speed. (a) Find its speed in kilometers per hour. (b) Convert it to meters per second. (c) How far does it travel in 2 hours 40 minutes?

19 Find the mistake



Mia says that $4 : 7$ and $8 : 11$ are equivalent because she added 4 to both numbers. (a) Explain her mistake. (b) What is the correct value of x in $4 : 7 = 8 : x$?

20 Baking with a fixed recipe



A bread recipe uses flour and sugar in the ratio $5 : 2$ (in cups). (a) How much flour goes with 3 cups of sugar? (b) A baker uses 17.5 cups of flour. How much sugar does she need?

21 Saving money



Maya and Leo save money in the ratio $7 : 4$. Maya has saved \$36 more than Leo. How much has each of them saved?



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Speed drill for Grade 6: how many in 60 seconds?

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