First 5 Minutes — Review Question

GRADE 6 • TOPIC 5 • LESSON 5.1 | 5 points • Work independently

Lesson 5.1 • Understand Ratios

Simplify $\frac{18}{24}$.

1. Show each step in your notebook.
2. Explain the operation or rule you used.

Real-Life Connection & Key Concepts

Essential question

How can you compare quantities?

Explore It!

An album has 9 pop songs and 6 R&B songs. Describe the relationship between the two song counts. How would a bar diagram represent the ratio?

What we will learn

Write ratios in three forms; distinguish part-to-part from part-to-whole; use bar and double number line diagrams.

Definitions & rules

Ratio: a comparison of two quantities by division.

Part-to-part: one group compared with another.

Part-to-whole: one group compared with the total. The order matters.

Example 1 — Understand Ratios

GRADE 6 • TOPIC 5 • LESSON 5.1 | Guided example • Model and explain

Problem

Tom’s Pet Service has 14 cats and 17 dogs. Compare cats to dogs and cats to all pets.

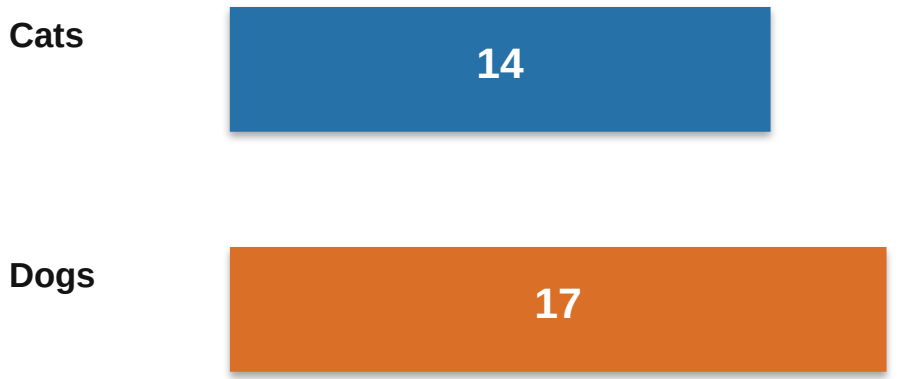
Worked solution

Cats to dogs: 14 to 17 = 14:17 = $\frac{14}{17}$.

Total pets = 14 + 17 = 31.

Cats to all pets: 14 to 31 = 14:31 = $\frac{14}{31}$.

Keep the quantities in the stated order; compare parts with parts or with the whole.



Example 2 — Understand Ratios

GRADE 6 • TOPIC 5 • LESSON 5.1 | Guided example • Model and explain

Problem

A sporting goods store has footballs and soccer balls in a ratio of 5:3. There are 100 footballs. How many soccer balls are there?

Worked solution

5 equal parts = 100 footballs.

1 part = 100 ÷ 5 = 20.

3 parts = 3 × 20 = 60 soccer balls.



Keep the quantities in the stated order; compare parts with parts or with the whole.

Example 3 — Understand Ratios

GRADE 6 • TOPIC 5 • LESSON 5.1 | Guided example • Model and explain

Problem

Chen bikes 3 miles in 15 minutes. At the same rate, how long will it take to bike 18 miles?

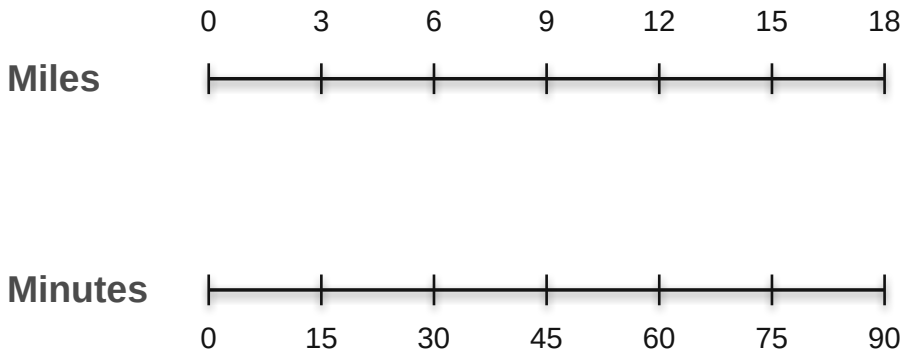
Worked solution

18 ÷ 3 = 6.

15 × 6 = 90 minutes.

The same factor multiplies both quantities.

Keep the quantities in the stated order; compare parts with parts or with the whole.



Each tick pair has the same ratio.

Individual Work

GRADE 6 • TOPIC 5 • LESSON 5.1 | 10 minutes total • 10 points

Complete all five tasks. Show your reasoning.

9. (p. 271) Use the blood donor table. Write O+ donors to A+ donors in three forms.

10. (p. 271) Write AB− donors to AB+ donors in three forms.

11. (p. 271) Write B+ donors to total donors in three forms.

Type	Donors
A+	45
B+	20
AB+	6
O+	90
A−	21
B−	0
AB−	4
O−	9
Total	195

Individual Work — continued

GRADE 6 • TOPIC 5 • LESSON 5.1 | 10 minutes total • 10 points

Finish the remaining problems. Check your work.

12. (p. 271) Write O− donors to A− donors in three forms.

13. (p. 271) Write A+ and B+ donors combined to AB+ donors in three forms.

Type	Donors
A+	45
B+	20
AB+	6
O+	90
A−	21
B−	0
AB−	4
O−	9
Total	195

Individual Work — Answer Key

Keep the quantities in the stated order; compare parts with parts or with the whole.

9. (p. 271)

90 O+ to 45 A+: 90 to 45, 90:45, $\frac{90}{45}$ (equivalent to 2:1).

10. (p. 271)

4 AB− to 6 AB+: 4 to 6, 4:6, $\frac{4}{6}$ (2:3).

11. (p. 271)

20 B+ to 195 total: 20 to 195, 20:195, $\frac{20}{195}$ (4:39).

12. (p. 271)

9 O− to 21 A−: 9 to 21, 9:21, $\frac{9}{21}$ (3:7).

13. (p. 271)

45 + 20 = 65; 65 to 6, 65:6, $\frac{65}{6}$.

Group Work

GRADE 6 • TOPIC 5 • LESSON 5.1 | 8 minutes total • 10 points

Work together. Each person must contribute a solution.

17. (p. 271) Sam packs 3 plums and 5 oranges for each apple. If he packs 3 apples, how many plums and oranges? Draw a diagram.

19. (p. 271) Rita’s class has 14 girls and 16 boys. How does the ratio 14:30 describe her class?

Group Work — continued

GRADE 6 • TOPIC 5 • LESSON 5.1 | 8 minutes total • 10 points

Agree on a solution and be ready to explain it.

21. (p. 272) A ratio of cars to minivans is 7:4. If there are 35 cars, how many minivans are there?

23. (p. 272) A tank fills at 1,800 gallons in 2 hours. Starting at 9:30 a.m., when will it contain 4,500 gallons?

Group Work — Answer Key

Keep the quantities in the stated order; compare parts with parts or with the whole.

17. (p. 271)

Multiply each part of 1:3:5 by 3: 3 apples, 9 plums, 15 oranges.

19. (p. 271)

14 + 16 = 30 students; 14:30 compares girls to all students.

21. (p. 272)

7 cars : 4 minivans. 35 ÷ 7 = 5; 4 × 5 = 20 minivans.

23. (p. 272)

1,800 gallons in 2 h = 900 gal/h. 4,500 ÷ 900 = 5 h after 9:30 a.m. → 2:30 p.m.

Exit Ticket

GRADE 6 • TOPIC 5 • LESSON 5.1 | 2 minutes • Independent check

Before you leave, solve this problem.

A box has 7 blue and 14 orange markers. Write blue to total and explain.

Show your work.

Write the answer with the correct units or graph, if needed.