

Ratios, Rates, Proportions & Units

Foundation to Challenge

Practice should make the test feel easier, not merely familiar.

Work without the answer key first. When you finish, use the QR code on the final page to check your answers online.

FOUNDATION

- 1** A campus shuttle travels 3.6 kilometers in 8 minutes at a constant rate. At this rate, how many kilometers will it travel in 30 minutes?

- 2** A paint mixture uses blue and white paint in the ratio 7:3. If 42 liters of blue paint are used, how many liters of white paint are needed?
- A. 12
 - B. 16
 - C. 18
 - D. 21

- 3** A packing line seals 54 cartons in 12 minutes. If the rate stays constant, how many cartons can it seal in 50 minutes?

- 4 A coffee blend contains beans from Region A and Region B in the ratio 5:8. If the blend has a total mass of 91 kilograms, how many kilograms are from Region A?
- A. 30
 - B. 35
 - C. 40
 - D. 56

- 5 On a trail map, 2.5 centimeters represents 18 kilometers. A route measures 7.5 centimeters on the map. What is the actual length of the route, in kilometers?

STANDARD

- 6 An empty reservoir holds 1,260 liters. Water enters at 84 liters per minute while 14 liters per minute drains out through an open valve. How many minutes will it take to fill the reservoir?
- A. 15
 - B. 18
 - C. 21
 - D. 24
- 7 A hiker travels 9 kilometers at 6 kilometers per hour and then 12 kilometers at 8 kilometers per hour. What is the hiker's average speed for the entire trip, in kilometers per hour?
- A. 6.5
 - B. 7
 - C. 7.5
 - D. 8

- 8** Twelve identical notebooks cost \$33.60. At the same unit price, what is the cost, in dollars, of 35 notebooks?

- 9** Snack A costs \$1.26 and contains 18 grams of protein. Snack B costs \$1.44 and contains 24 grams of protein. What is the ratio of the cost per gram of protein for Snack A to that for Snack B?

- A. 6:7
- B. 7:6
- C. 7:8
- D. 8:7

- 10** At a theater, the ratio of adult tickets sold to student tickets sold is 5:9. If 364 tickets are sold in all, how many are adult tickets?

- 11** A recipe uses 3.5 cups of rice for 14 servings. How many cups of rice are needed for 36 servings at the same rate?

- A. 8
- B. 8.5
- C. 9
- D. 9.5

- 12** Machine A packages 96 items in 3 hours, and Machine B packages 150 items in 5 hours. Working together at their constant rates, how many hours will the machines need to package 310 items?

- 13** A driver travels 150 miles at 50 miles per hour and then 120 miles at 60 miles per hour. What is the average speed for the entire trip?

- A. 52 mph
- B. 54 mph
- C. 55 mph
- D. 56 mph

- 14** In a club, the ratio of seniors to juniors is 3:5. After 12 seniors join, the ratio becomes 5:7. How many juniors were originally in the club?

- 15** Two rectangles are similar. The ratio of a corresponding side length of the smaller rectangle to that of the larger rectangle is 4:7. What is the ratio of their areas, smaller to larger?

- A. 4:7
- B. 12:49
- C. 16:49
- D. 64:343

- 16** The volumes of two spheres are in the ratio 125:64. What is the ratio of their radii, larger to smaller?
- A. 5:4
 - B. 25:16
 - C. 125:64
 - D. 625:256

CHALLENGE

- 17** Pipe A fills $\frac{2}{5}$ of a tank in 3 hours. Pipe B fills $\frac{1}{3}$ of the same tank in 2 hours. If both pipes run together at constant rates, how many hours are needed to fill an empty tank? Give your answer to the nearest hundredth.

- 18** An electric scooter uses 1.8 kilowatt-hours of energy for every 12 kilometers traveled. A trip is 84 miles long, and 1 mile is taken to be 1.6 kilometers. Approximately how many kilowatt-hours are needed for the trip?
- A. 12.60
 - B. 16.80
 - C. 20.16
 - D. 25.20

- 19** The ratio of the number of files processed by Server A to Server B is initially 8:5. Server A's output increases by 25%, while Server B's output increases by 60%. What is the new ratio of A's output to B's output?
- A. 4:3
 - B. 5:4
 - C. 8:7
 - D. 10:9

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By 9:10 a.m., a warehouse team has loaded 75 crates. By 10:40 a.m., it has loaded 129 crates. If crates are loaded at a constant rate, how many crates will have been loaded by 1:10 p.m.?

Check your answers online.

The public practice PDF contains questions only. The answer check lives on the website so you can review your score, identify the kind of mistake you made, and move to the next resource.



ANSWER CHECK

Ratios, Rates & Units

Scan the QR code or visit:

<https://aryalanupme.github.io/sat-ratios-rates-units.html>

If you are stuck on one question, note the question number and the approach you tried before checking another solution.

Independent resource

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