
Ratios and Proportions

1. If a jar contains three blue marbles and eight red marbles, what is the ratio of blue marbles to red marbles?
(A) 3:11 (B) 3:8 (C) 8:3 (D) 11:3 (E) 4:1
2. If a school has 24 teachers and 480 students, what is the ratio of teachers to students?
(A) $\frac{1}{20}$ (B) $\frac{1}{24}$ (C) $\frac{1}{48}$ (D) $\frac{1}{56}$ (E) $\frac{1}{200}$
3. If a library contains 12,000 works of fiction and 3,000 works of nonfiction, what is the ratio of works of fiction to works of nonfiction?
(A) $\frac{1}{9}$ (B) $\frac{1}{5}$ (C) $\frac{1}{4}$ (D) $\frac{4}{1}$ (E) $\frac{5}{1}$
4. Which of the following is equivalent to $\frac{1}{3}$?
I. $\frac{40}{120}$
II. $\frac{75}{100}$
III. $\frac{120}{360}$
(A) I only (B) III only (C) I and III only (D) II and III only (E) I, II, and III

Questions 5 and 6 refer to the following chart.

Students at Tyler Junior High School		
	7 th Grade	8 th Grade
Girls	90	80
Boys	85	75

5. What is the ratio of seventh-grade girls to the total number of girls at Tyler Junior High School?
(A) $\frac{9}{17}$ (B) $\frac{8}{9}$ (C) $\frac{18}{17}$ (D) $\frac{9}{8}$ (E) $\frac{17}{9}$

6. What is the ratio of eighth-grade girls to the total number of students at Tyler Junior High School?
 (A) $\frac{8}{33}$ (B) $\frac{9}{33}$ (C) $\frac{8}{15}$ (D) $\frac{8}{17}$ (E) $\frac{17}{33}$
7. If an airplane flies 275 miles on 25 gallons of fuel, then what is the average fuel consumption for the entire trip expressed in miles per gallon?
 (A) 25 (B) 18 (C) 15 (D) 11 (E) 7
8. If an assortment of candy contains 12 chocolates, 6 caramels, and 9 mints, what is the ratio of chocolates to caramels to mints?
 (A) 4:3:2 (B) 4:2:3 (C) 3:4:2 (D) 3:2:4 (E) 2:4:3
9. If Maria has twice as much money as Tim, who has three times as much money as William, then what is the ratio of the amount of money William has to the amount of money Maria has?
 (A) $\frac{1}{8}$ (B) $\frac{1}{6}$ (C) $\frac{1}{4}$ (D) $\frac{1}{2}$ (E) $\frac{2}{1}$
10. If three farkels buy two kirns, and three kirns buy five pucks, then nine farkels buy how many pucks?
 (A) 2 (B) 5 (C) 8 (D) 10 (E) 17
11. If machine x operates at twice the rate of machine y, and machine y operates at $\frac{2}{3}$ the rate of machine z, then what is the ratio of the rate of operation of machine x to the rate of operation of machine z?
 (A) $\frac{4}{1}$ (B) $\frac{3}{1}$ (C) $\frac{4}{3}$ (D) $\frac{3}{4}$ (E) $\frac{1}{3}$
12. If 48 marbles are to be divided between Bill and Carl in the ratio of 3:5, how many marbles should Bill get?
 (A) 6 (B) 8 (C) 18 (D) 24 (E) 30
13. If the sum of \$10 is to be divided between Molly and Fred so that Fred receives only $\frac{1}{4}$ of what Molly receives, then how much should Molly receive?
 (A) \$10.00 (B) \$8.00 (C) \$7.50 (D) \$6.00 (E) \$2.00
14. If a \$1,000 reward is to be divided among three people in the ratio of 2:3:5, what is the largest amount that will be given to any one of the three recipients?
 (A) \$200 (B) \$300 (C) \$500 (D) \$750 (E) \$900
15. If $\frac{6}{8} = \frac{x}{4}$, then $x =$
 (A) 12 (B) 6 (C) 4 (D) 3 (E) 2

16. If $\frac{14}{x} = \frac{2}{7}$, then $x =$
(A) 7 (B) 14 (C) 28 (D) 49 (E) 343
17. If $\frac{3}{4} = \frac{4}{x}$, then $x =$
(A) $\frac{3}{16}$ (B) $\frac{3}{4}$ (C) $\frac{4}{3}$ (D) $\frac{7}{3}$ (E) $\frac{16}{3}$
18. If 240 widgets cost \$36, what is the cost of 180 widgets?
(A) \$8 (B) \$16 (C) \$24 (D) \$27 (E) \$32
19. If a kilogram of a certain cheese cost \$9.60, what is the cost of 450 grams of cheese? (1 kilogram = 1,000 grams)
(A) \$2.78 (B) \$3.14 (C) \$3.88 (D) \$4.32 (E) \$5.12
20. If 50 feet of electrical wire cost \$4.80, then \$10.80 will buy how many feet of the wire?
(A) 60 (B) 62.5 (C) 67.25 (D) 75 (E) 112.5
21. In a certain group of people, 100 people have red hair. If only 25 percent of the people have red hair, then how many people do not have red hair?
(A) 75 (B) 125 (C) 300 (D) 400 (E) 500
22. If a certain fundraising project has raised \$12,000, which is 20 percent of its goal, how much money will have been raised when 50 percent of the goal has been reached?
(A) \$60,000 (B) \$30,000 (C) \$18,000 (D) \$15,000 (E) \$4,800
23. If 48 liters of a certain liquid weigh 50 kilograms, then how much (in kilograms) do 72 liters of the liquid weigh?
(A) 25 (B) 60 (C) 75 (D) 90 (E) 120
24. If the trip from point x to point y takes two hours walking at the constant rate of four miles per hour, how long (expressed in hours) will the same trip take walking at a constant rate of five miles per hour?
(A) 2.5 (B) 1.75 (C) 1.6 (D) 1.5 (E) 1.25
25. A swimming pool is filled by either of two pipes. Pipe A supplies water at the rate of 200 gallons per hour and takes eight hours to fill the pool. If Pipe B can fill the pool in five hours, what is the rate (in gallons per hour) at which Pipe B supplies water?
(A) 125 (B) 320 (C) 360 (D) 480 (E) 575