

Exercise

Ex 1: The cost of 700 items at \$1.50 per 100.

Many times, we may have to gather information from the problem that is not directly stated. Gathering this information is called inferring.

Ex 2: A wire of uniform density and composition weighs 32 pounds. It is cut into 2 pieces. One is 60 feet and 24 pounds, what is the length of the original piece?

Ex 3: Of 90 students in the class, the ratio of boys to girls is 2:3. How many girls?

Ex 4: 5 oranges cost c cents. How many can be bought for y dollars?

Ex 5: If x is $k\%$ of y , what $\%$ of y is kx ?

One more important point in ratios is the order. For example, 1:5 is not equal to 5:1.

Ex 6: In a beautiful garden, $\frac{1}{5}$ th of the flowering plants represent $\frac{1}{10}$ th of all the flowering plants. What is the ratio of flowering plants to non flowering plants?

Ex 7: A jar contains blue and red marbles, 20 in all. Each of the following can be in the ratio of blue to red except,

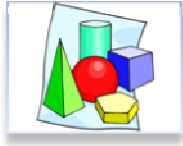
- A. 1:1
- B. 3:2
- C. 4:1
- D. 5:1
- E. 9:1

Interesting answers for the questions:

Ex 1: \$ 10.50

Ex 2: 80 ft

Ex 3: Girls are 54.



Ratio

Ex 4: $500y/c$

Ex 5: k^2 percent.

Ex 6: Ratio is $1/1$

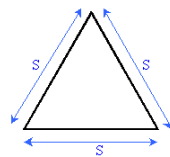
Ex 7: D is not possible

Brief notes on proportion

It is a statement that two ratios are equal. $3/4 = 6/8$ is an example of a proportion. If any one number in a proportion is unknown, we may cross multiply to get the answer hence solving the proportion. The unknown number is often indicated as question marks or letters.

Let's solve these

Ex 8:



If $2/3$ of the perimeter of an equilateral triangle is 12, the perimeter is ..

- A. 8
- B. 16
- C. 24
- D. 36

Ex 9: On a map, two cities are $2.4''$ apart are really 12 miles apart. What is the length of a $0.2''$ straight road?

Map reading, navigation and range finding are fundamental to the work of any armed forces. Good map reading skills rely on application of ratios and understanding of relative scale.



Ratio

Ex 10: Sugar costs m cents per pound. How many pounds can be bought for 6 dollars?

Ex 11: In a 10-pound solution of water and alcohol, the ratio of mass of water per alcohol is 3:2. A 6-pound solution having 2 parts water to one part alcohol is added to the 10-pound solution. What fraction of the new solution is alcohol?

Ex 12:



A
Q and R are two points to the right of A on the number line. $2 AQ = 3 AR$, What is RQ/AR ?

Ex 13: $A^4 = 5$, $a^3 = 2/c$, write a in terms of c .

Ex 14: At a certain school, a liters of milk are needed per week per student. At that rate, b liters will supply c students for how many weeks?

Have you heard of a ratio in milk, which is called the “Minerals ratio”. Any pure milk has the minerals calcium and phosphorus in the ratio 2:1. Milk calcium is more biologically available than in any cereals and vegetables. Ratios are everywhere.

Answers:

Ex 8: 18

Ex 9: 1

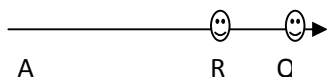
Ex 10: $600/m$ pounds

Ex 11: $3/8$ alcohol

Ex 12: $RQ/AR = 1/2$



Ratio



Ex 13: $a = 5c/2$

Ex 14: $b(1/ac) = b/ac$

Questions:

Ex 15: A gas tank on a tractor holds 18 gallons. A tractor needs 7 gallons to plow 3 acres. How many acres does the tractor plow with a full gas tank?

Ex 16: A penguin swims at 8m per second. How long does it take to swim 100m?

Ex 17: If z is 70% of y, and x is 60 % of y, the ratio of z to x is _____.

Ex 18: It takes 10 people 12 hours to do a job. How many hours will it take for 6 people to do $\frac{1}{4}$ of the job?

Ex 19: $(b+a)/b = 2$, $(c+a)/a = 3$, $b/c = ?$

Ex 20: The ratio of Rohit's salary to Cris's salary is 2 to 5.

The ratio of Rohit's salary to Cory's salary is 7 to 9.

Find the ratio of Cris's to Cori's.

Ex 21: What is the thickness of one sheet of paper if 500 sheets is 2.5 inches thick?

Ex 22: When John goes to a grocery store for every 2 oranges he buys, he purchases 3 peaches, and 1 apple. John bought 8 oranges. How many peaches and how many apples did he buy?

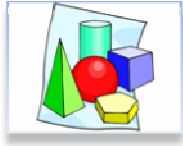
Ex 23: Danny's printer can print 4 pieces of paper in 15 seconds. How long will it take to print 25 pieces of paper?

Answers:

Ex 15: $54/7$ acres.

Ex 16: 12.5 seconds.

Ex 17: $z/x = 7/6$



Ratio

Ex 18: 5 hours

Ex 19: $b/c = \frac{1}{2}$

Ex 20: $35/18$

Ex 21: $2.5/500 = 0.005$

Ex 22: 12 peaches and 4 apples.

Ex 23: 93.75 seconds.