

Select the correct answer.

1. If $x : y = 8 : 9$, then $(7x - 4y) : (3x + 2y)$ is equal to
a. 15 : 31 b. 7 : 13 c. 10 : 21 d. 5 : 11
2. Two numbers are in the ratio 2 : 5. If each number is increased by 13, the ratio becomes 5 : 6. The sum of the numbers is
a. 28 b. 7 c. 14 d. 21
3. If ₹ 782 is divided into three parts in the ratio $\frac{1}{2} : \frac{2}{3} : \frac{3}{4}$, then the first part is
a. ₹ 204 b. ₹ 190 c. ₹ 182 d. ₹ 196
4. Two numbers are in the ratio 3 : 5. If 9 is subtracted from each, the new numbers are in the ratio 12 : 23. The smaller number is
a. 55 b. 49 c. 33 d. 27
5. In a bag there are coins of ₹ 2, ₹ 1 and ₹ 5 in the ratio 1 : 2 : 3. If there is ₹ 190 in all, then the number of ₹ 5 coins is
a. 20 b. 10 c. 30 d. 40

- Express each of the following ratios in its simplest form.
 - 96 : 144
 - $2\frac{2}{3} : 1\frac{3}{4}$
 - $\frac{1}{8} : \frac{1}{10} : \frac{1}{4}$
 - 2.7 : 6.3 : 9
- A student solved 6 out of 10 problems correctly. What is the ratio of the correct problems to the incorrect problems?
- A petrol tank with a capacity of 100 litres has 25 litres of petrol in it.
 - Find the ratio of the number of litres of petrol in the tank to the capacity of the tank.
 - What part of the tank is full?
- There are 2000 students in a school. Out of them, 850 are boys and the rest are girls. Find the ratio of
 - number of girls to number of boys.
 - number of boys to number of students.
- Express each of the following ratios in simplest form.
 - 25 cm to 1 m
 - 85 paise to ₹ 5
 - 3 kg to 500 g
 - 15 m/s to 108 km/h
 - 35 days to 6 weeks
 - 300 mL to 1 L 350 mL
 - $1\frac{1}{2}$ hours to $\frac{1}{2}$ hour
 - 8 months to 3 years
 - 2 km to 1 km 50 m
- A milk pudding requires $3\frac{1}{2}$ cups of milk and $2\frac{1}{4}$ cups of sugar. What is the ratio of the number of cups of milk to the number of cups of sugar in this recipe?
- Find two equivalent ratios of 14 : 42.
- Compare the ratios: 4 : 7 and 5 : 8
- The following is the performance of a football team in the matches it played:

Years	Wins	Losses
Year 1	6	2
Year 2	8	3

In which year was the record better? How can you say so?

- Divide a line segment 45 cm into three parts whose ratio is 5 : 7 : 3.
- Two numbers are in the ratio 4 : 5. If 7 is subtracted from each of them, then the ratio becomes 3 : 4. Find the numbers.
- What number must be added to each term of the ratio 7 : 5, so that the ratio becomes 5 : 4?

A man divides ₹ 1072

•• Higher order thinking

among his children A, B and C as

pocket money in the ratio $\frac{1}{5} : \frac{1}{4} : \frac{2}{3}$

respectively. Find each child's share.





EXERCISE 7B

•• Problem-solving: Real-life situations

1. Determine whether the following are in proportion or not.
 - i. 7, 21, 18, 49
 - ii. $3, 4\frac{1}{2}, 2\frac{2}{3}, 4$
 - iii. 7.2, 8.4, 18.6, 21.7
 - iv. 0.4 m, 1.2 m, 0.6 m, 1.8 m
2. Find the value of x in the following proportion:
 - i. $25:x::5:2$
 - ii. $x:100::3:12$
 - iii. $8:17.5::x:35$
 - iv. $2:9::6:x$
3. Find the fourth proportional in each of the following:
 - i. 3, 5, 21
 - ii. 69, 92, 87
4. The mass of 20 metres of copper wire is 0.9 kg. Find the mass of 170 metres of the same type of copper wire.
5. A picture 32 cm long and 12 cm wide is to be enlarged so that its length will become 56 cm. What will be the width of the enlarged picture?
6. In a certain concrete mixture, the ratio of cement to sand is 1:5. How many bags of cement would be used with 200 bags of sand?



EXERCISE 7C

•• Real-life situations

1. If 12 kg of rice costs ₹ 696, then find the cost of 17 kg of rice.
2. If 750 g of milk provides 24.75 g of protein, then how many grams of protein does 100 g of milk provide?
3. A dozen mangoes weigh 4.8 kg wt. How many mangoes will weigh 11.2 kg wt?
4. A car can cover a distance of 330 km on 25 litres of petrol. How far can it travel on 17 litres of petrol?
5. A pipe can fill 4 water tanks in 2 h 20 min. How long will it take to fill 7 such tanks using the same pipe?
6. If 54 men can finish a piece of work in 49 days, then how many men will be needed to finish it in 42 days.
7. If 12 men can reap a field in 8 days, in how many days can 16 men reap the same field?



EXERCISE 7D

•• Conceptual understanding; Problem-solving

1. Express each of the following fractions as a per cent.

i. $\frac{2}{5}$

ii. $\frac{91}{400}$

iii. $\frac{63}{100}$

iv. $\frac{23}{20}$

2. Express each of the following as a fraction in its simplest form.

i. 0.75%

ii. 2.4%

iii. 32%

iv. $16\frac{1}{2}\%$

3. Express each of the following decimals as a per cent.

i. 0.07

ii. 1.75

iii. 0.005

iv. 6.625

4. Express each of the following as a decimal.

i. 0.33%

ii. 2%

iii. 6.75%

iv. 327.5%

5. Evaluate the following.

i. 20% of 800

ii. 2.5% of 750

iii. $33\frac{1}{2}\%$ of 1200

iv. 145% of 30

6. Find the value of the following.

i. 3.75% of 1000 litres

ii. $\frac{2}{3}\%$ of 6000 kg

iii. $66\frac{2}{3}\%$ of 567 km

iv. 125% of 5 hours 20 minutes

7. What per cent of

i. 250 is 225

ii. 120 is 96

iii. 150 is $\frac{3}{4}$

iv. ₹ 200 is ₹ 12?

8. What per cent is

i. 612 people of 720 people

ii. ₹ 526.50 of ₹ 650

iii. 32.85 hours of 73 hours

iv. 250 mL of 2 L

v. 40 seconds of 2 minutes 40 seconds

vi. 5 paise of ₹ 1

vii. 800 m of 40 km

viii. 25 g of 1 kg?

9. If $16\frac{2}{3}\%$ of x is 25, then find the value of x .

10. Find the number whose 6% is 42.

11. What is the per cent change when i. 25 is increased to 45 ii. 150 is decreased to 135?

12. Increase i. ₹ 90 by 10% ii. 60 m by 6%

13. Decrease i. 240 g by 25% ii. ₹ 120 by 10%

**EXERCISE 7E**

• • Real-life situations

1. In a basket containing red and green marbles, 64 out of a total 160 marbles are green. What per cent of marbles are green?
2. Out of an income of ₹ 5600, Inder spends ₹ 4800. What per cent of his income does he save?
3. 45 students out of 50 in Class VII A passed the examination while 5 out of 60 students of Class VII B failed the examination. Which section of class VII had better result?

4. 700 m of the road which is 1 km long has been repaired. Find the percentage of the road which is yet to be repaired.
5. On a particular day, 10% of the students in a class remained absent. If 45 were present on that day, then find the total strength of the class.
6. Anil went to school for 195 days in a year. If his attendance is 78%, then find the number of days on which the school was open.
7. The speed of a train is increased from 80 km/h to 120 km/s. Find the percentage increase.
8. The price of a pair of shoes is increased by 12%. If the present price of the pair of shoes is ₹ 896, then find its original price.
9. The price of a room heater is reduced by 25%. If its original price was ₹ 1800, then find the reduced price.



EXERCISE 7F

•• Real-life situations

1. A shopkeeper purchased an article for ₹ 4560 and sold it for ₹ 5000. Find his profit and profit per cent.
2. A car was purchased for ₹ 185000 and after spending ₹ 15000 on its repairs, it was sold for ₹ 190000. Find the loss per cent.
3. A grocer bought 20 dozen eggs at ₹ 16 per dozen. Out of these, 8 eggs were found to be broken. He sold the remaining at ₹ 1.50 per egg. Find his gain or loss per cent.
4. The cost of 5 pencils is equal to the selling price of 4 pencils. Find the gain per cent.
5. The selling price of 11 laptops is equal to the cost price of 10 laptops. What is the loss per cent?
6. A shopkeeper buys 16 books at ₹ 250 per book. He sells 4 books at ₹ 200 per book and the remaining 12 books at ₹ 275 per book. Find his gain or loss per cent.

7. A grocer buys 480 loaves of bread at ₹ 216 per dozen. He sold them at a gain of 15%. Find the selling price of 15 loaves of bread.
8. A vegetable vendor purchased lemons at ₹ 20 per dozen. He sells them at a loss of 10%. Find the selling price of half a dozen lemons.
9. By selling an article for ₹ 3250, a trader gains 30%. Find the cost price of the article.
10. By selling a TV set for ₹ 13500, a shopkeeper loses 20%. Find the cost price of the TV set.
11. By selling an article for ₹ 760, a man loses 5%. What would have been his gain or loss per cent if he had sold it for ₹ 840?
12. A shopkeeper bought 11 hair clips for ₹ 10 and sold 10 for ₹ 11. Find his gain or loss per cent.
13. By selling a DVD player for ₹ 2816, a shopkeeper lost 12%. For what amount should he have sold it to gain 12%?
14. A shopkeeper sells a small geyser for ₹ 3360 and gains one-sixth of its cost price. Find his gain per cent.



EXERCISE 7G

•• Conceptual understanding; Problem-solving

1. Find the simple interest and the amount when
 - i. principal = ₹ 5500, rate = 14% p.a. and time = 3 years
 - ii. principal = ₹ 1250, rate = 4% p.a. and time = $2\frac{1}{2}$ years
 - iii. principal = ₹ 7200, rate = 7% p.a. and time = 5 months
 - iv. principal = ₹ 1500, rate = 12% p.a. and time = 4 years 3 months
 - v. principal = ₹ 2000, rate = 10% p.a. and time = 73 days
2. What sum of money will amount to ₹ 2832 at $9\frac{1}{2}$ % p.a. in 5 years?
3. The simple interest on a certain sum for $1\frac{1}{2}$ years at 10% per annum is ₹ 112.50. Find the sum.
4. Find the rate when
 - i. principal = ₹ 1050, simple interest = ₹ 168 and time = 2 years
 - ii. principal = ₹ 4400, amount = ₹ 5610 and time = 5 years 6 months
5. At what rate of simple interest will a sum of money double itself in $12\frac{1}{2}$ years?
6. Find the time when
 - i. principal = ₹ 300, simple interest = ₹ 6.75 and rate = $4\frac{1}{2}$ % p.a.
 - ii. principal = ₹ 4000, simple interest = ₹ 250 and rate = 5% p.a.
7. In how many years will a sum of money double itself at 10% per annum simple interest?
8. A sum of money invested at 5% per annum amounts to ₹ 896 in $2\frac{2}{5}$ years. What will it amount to in 3 years 9 months at the same rate of interest?
9. Which is a better investment: ₹ 5000 for 10 years at 5% p.a. or ₹ 5500 for 8 years at the rate of 6% p.a.?