

EXERCISE 9.1

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1. Express each of the following in the language of ratios:

(i) In a class, the number of girls in the merit list of the board examination is two times that of boys.(ii) The number of students passing mathematics test is 2/3 of the number that appeared.Solution:

(i) Ratio of the number of girls to that of boys in the merit list is 2: 1.

(ii) Ratio of the number of students passing a mathematics test to that of total students appearing in the test is 2: 3.

2. Express the following ratios in language of daily life:

(i) The ratio of the number of bad pencils to that of good pencils produced in a factory is 1: 9.(ii) In India, the ratio of the number of villages to that of cities is about 2000: 1.Solution:

(i) The number of bad pencils produced in a factory is 1/9 of the number of good pencils produced in the factory.

(ii) The number of villages is 2000 times that of cities in India.

3. Express each of the following ratios in its simplest form:

(i) 60: 72 (ii) 324: 144 (iii) 85: 391 (iv) 186: 403 Solution:

(i) 60: 72 It can be written as 60/72We know that the HCF of 60 and 72 is 12 By dividing the term by 12 we get $(60/72) \times (12/12) = 5/6$ So we get 60: 72 = 5: 6

(ii) 324: 144 It can be written as 324/144 We know that the HCF of 324 and 144 is 36 By dividing the term by 36 we get (324/144) × (36/36) = 9/4 So we get 324: 144 = 9: 4

(iii) 85: 391 It can be written as 85/391 We know that the HCF of 85 and 391 is 17 By dividing the term by 17 we get $(85/391) \times (17/17) = 5/23$ So we get 85: 391 = 5: 23

(iv) 186: 403 It can be written as 186/403



We know that the HCF of 186 and 403 is 31 By dividing the term by 31 we get $(186/403) \times (31/31) = 6/13$ So we get 186: 403 = 6: 13

4. Find the ratio of the following in the simplest form:
(i) 75 paise to Rs 3
(ii) 35 minutes to 45 minutes
(iii) 8 kg to 400 gm
(iv) 48 minutes to 1 hour
(v) 2 metres to 35 cm
(vi) 35 minutes to 45 seconds
(vii) 2 dozen to 3 scores
(viii) 3 weeks to 3 days
(ix) 48 min to 2 hours 40 min
(x) 3 m 5 cm to 35 cm
Solution:

(i) 75 paise to Rs 3
It can be written as
75 paise to Rs 3 = 75 paise: Rs 3
We know that 1 Rs = 100 paise
So we get
75 paise to Rs 3 = 75 paise: 300 paise
Dividing the two terms by HCF 75
75 paise to Rs 3 = 1: 4

(ii) 35 minutes to 45 minutes
It can be written as
35 minutes to 45 minutes = 35 minutes: 45 minutes
Dividing the two terms by HCF 5
35 minutes to 45 minutes = 7: 9

(iii) 8 kg to 400 gm It can be written as 8 kg to 400 gm = 8 kg: 400 gm We know that 1 kg = 1000 gm So we get 8 kg to 400 gm = 8000 gm: 400 gm Dividing the two terms by HCF 400 8 kg to 400 gm = 20: 1

(iv) 48 minutes to 1 hour
It can be written as
48 minutes to 1 hour = 48 minutes: 1 hour
We know that 1 hour = 60 minutes
So we get
48 minutes to 1 hour = 48 minutes: 60 minutes
Dividing the two terms by HCF 12
48 minutes to 1 hour = 4: 5



(v) 2 metres to 35 cm It can be written as 2 metres to 35 cm = 2 metres: 35 cm We know that 1 m = 100 cm So we get 2 metres to 35 cm = 200 cm: 35 cm Dividing the two terms by HCF 5 2 metres to 35 cm = 40: 7

(vi) 35 minutes to 45 seconds
It can be written as
35 minutes to 45 seconds = 35 minutes: 45 seconds
We know that 1 minute = 60 seconds
So we get
35 minutes to 45 seconds = 2100 seconds: 45 seconds
Dividing the two terms by HCF 15
35 minutes to 45 seconds = 140: 3

(vii) 2 dozen to 3 scores
It can be written as
2 dozen to 3 scores = 2 dozen: 3 scores
We know that 1 dozen = 12 score = 20
So we get
2 dozen to 3 scores = 24: 60
Dividing the two terms by HCF 12
2 dozen to 3 scores = 2: 5

(viii) 3 weeks to 3 days
It can be written as
3 weeks to 3 days = 3 weeks: 3 days
We know that 1 week = 7 days
So we get
3 weeks to 3 days = 21 days: 3 days
Dividing the two terms by HCF 3
3 weeks to 3 days = 7: 1

(ix) 48 min to 2 hours 40 min
It can be written as
48 min to 2 hours 40 min = 48 min: 2 hours 40 min
We know that 1 hour = 60 minutes
So we get
48 min to 2 hours 40 min = 48 min: 160 min
Dividing the two terms by HCF 16
48 min to 2 hours 40 min = 3: 10

(x) 3 m 5 cm to 35 cmIt can be written as 3 m 5 cm to 35 cm = 3 m 5 cm: 35 cmWe know that 1 m = 100 cmSo we get



3 m 5 cm to 35 cm = 305 cm: 35 cmDividing the two terms by HCF 5 3 m 5 cm to 35 cm = 61: 7

5. Find the ratio of (i) 3.2 metres to 56 metres (ii) 10 metres to 25 cm (iii) 25 paise to Rs 60 (iv) 10 litres to 0.25 litre Solution:

(i) 3.2 metres to 56 metres
It can be written as
3.2 metres to 56 metres = 3.2 metres: 56 metres
Dividing the two terms by HCF 1.6
3.2 metres to 56 metres = 2: 35

(ii) 10 metres to 25 cm It can be written as 10 metres to 25 cm = 10 m: 25 cm We know that 1 m = 100 cm 10 metres to 25 cm = 1000 cm: 25 cm Dividing the two terms by HCF 25 10 metres to 25 cm = 40: 1

(iii) 25 paise to Rs 60 It can be written as 25 paise to Rs 60 = 25 paise: Rs 60 We know that 1 Rs = 100 paise 25 paise to Rs 60 = 25 paise: 6000 paise Dividing the two terms by HCF 25 25 paise to Rs 60 = 1: 240

(iv) 10 litres to 0.25 litre
It can be written as
10 litres to 0.25 litre = 10 litres: 0.25 litre
Dividing the two terms by HCF 0.25
10 litres to 0.25 litre = 40: 1

6. The number of boys and girls in a school are 1168 and 1095 respectively. Express the ratio of the number of boys to that of the girls in the simplest form. Solution:

No. of boys = No. of girls = So the ratio of the number of boys to that of the girls = 1168: Dividing the two terms by HCF 73 Ratio of number of boys to that of the girls = 16:

Hence, the ratio of the number of boys to that of girls in simplest form is 16: 15.



7. Avinash works as a lecturer and earns Rs 12000 per month. His wife who is a doctor earns Rs 15000 per month. Find the following ratios:
(i) Avinash's income to the income of his wife.
(ii) Avinash's income to their total income.
Solution:

Avinash salary earned per month = Rs 12000 Avinash wife salary per month = Rs 15000 (i) Avinash's income to the income of his wife = 12000/15000 = 4: 5

(ii) Avinash's income to their total income = 12000/(12000 + 15000) = 4:9

8. Of the 72 persons working in an office, 28 are men and the remaining are women. Find the ratio of the number of:

(i) men to that of women,(ii) men to the total number of persons(iii) persons to that of women.Solution:

No. of persons working in an office = 72 No. of men = 28 So the number of women = 72 - 28 = 44

(i) men to that of women = 28: 44 Multiplying and dividing the equation by HCF 4 Men to that of women = $(28/44) \times (4/4) = 7: 11$

(ii) men to the total number of persons = 28: 72 Multiplying and dividing the equation by HCF 4 Men to the total number of persons = $(28/72) \times (4/4) = 7: 18$

(iii) persons to that of women = 72: 44 Multiplying and dividing the equation by HCF 4 Persons to that of women = $(72/44) \times (4/4) = 18: 11$

9. The length of a steel tape for measurements of buildings is 10 m and its width is 2.4 cm. What is the ratio of its length to width? Solution:

It is given that Length of a steel tape = 10 m Width of steel tape = 2.4 cm So the ratio of its length to width = 10 m/ 2.4 cm We know that 1 m = 100 cm Ratio of its length to width = 1000 cm/ 2.4 cm Dividing the two terms by HCF 0.8 cm Ratio of its length to width = 1250: 3

Hence, the ratio of its length to width is 1250: 3.





10. An office opens at 9 am and closes at 5 pm with a lunch interval of 30 minutes. What is the ratio of lunch interval to the total period in office? Solution:

Duration of office = 9 am to 5 pm = 8 hours Lunch interval = 30 minutes So the ratio of lunch interval to the period in office = 30 minutes/8 hours We know that 1 hour = 60 minutes Ratio of lunch interval to the period in office = $30/(8 \times 60) = 30/480$ Dividing the two terms by HCF 30 Ratio of lunch interval to the period in office = $(30/480) \times (30/30) = 1:16$

Hence, the ratio of lunch interval to the total period in office is 1: 16.

11. A bullock-cart travels 24 km in 3 hours and a train travels 120 km in 2 hours. Find the ratio of their speeds. Solution:

Distance travelled by bullock-cart = 24 km in 3 hours Distance travelled by train = 120 km in 2 hours It can be written as Distance travelled by bullock-cart = 24 km/ 3 = 8 km Distance travelled by train = 120 km/2 = 60 km So the ratio of their speeds = 8/60Dividing the two terms by HCF 4 Ratio of their speeds = $(8/60) \times (4/4) = 2:15$

Hence, the ratio of their speeds is 2: 15.

12. Margarette works in a factory and earns Rs 955 per month. She saves Rs 185 per month from her earnings. Find the ratio of:
(i) her savings to her income
(ii) her income to her expenditure
(iii) her savings to her expenditure.
Solution:

Margarette monthly income = Rs 955 Margarette monthly savings = Rs 185 Margarette expenditure = 955 - 185 = Rs 770

(i) her savings to her income = 185/955Dividing the two terms by HCF 5 Her savings to her income = $(185/955) \times (5/5) = 37$: 191

(ii) her income to her expenditure = 955/770 = 191: 154

(iii) her savings to her expenditure = 185/770 = 37: 154



EXERCISE 9.2

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1. Which ratio is larger in the following pairs? (i) 3: 4 or 9: 16 (ii) 15: 16 or 24: 25 (iii) 4: 7 or 5: 8 (iv) 9: 20 or 8: 13 (v) 1: 2 or 13: 27 Solution:

(i) 3: 4 or 9: 16 It can be written as 3: 4 = 3/4 and 9: 16 = 9/16LCM of 4 and 16 is 16 Multiplying both numerator and denominator of the term ³/₄ by 4 to make the denominator 16 $3/4 = (3/4) \times (4/4) = 12/16$ and 9/16We know that 12 > 9So we get 12/16 > 9/16We can write it as 3/4 > 9/16

Hence, 3: 4 > 9: 16.

(ii) 15: 16 or 24: 25 It can be written as 15: 16 = 15/16 and 24: 25 = 24/25 LCM of 16 and 25 is 400 Multiplying both the terms by relevant numbers to make denominator as 400 $15/16 = (15/16) \times (25/25) = 375/400$ and $24/25 = (24/25) \times (16/16) = 384/400$ We know that 384 > 375So we get 384/400 > 375/400We can write it as 24/25 > 15/16

Hence, 24: 25 > 15: 16.

(iii) 4: 7 or 5: 8 It can be written as 4: 7 = 4/7 and 5: 8 = 5/8 LCM of 7 and 8 is 56 Multiplying both the terms by relevant numbers to make denominator as 56 $4/7 = (4/7) \times (8/8) = 32/56$ and $5/8 = (5/8) \times (7/7) = 35/56$ We know that 35 > 32So we get 35/56 > 32/56We can write it as 5/8 > 4/7

Hence, 5: 8 > 4: 7.

(iv) 9: 20 or 8: 13 It can be written as 9: 20 = 9/20 and 8: 13 = 8/13



LCM of 20 and 13 is 260 Multiplying both the terms by relevant numbers to make denominator as 260 $9/20 = (9/20) \times (13/13) = 117/260$ and $8/13 = (8/13) \times (20/20) = 160/260$ We know that 160 > 117So we get 160/260 > 117/260We can write it as 8/13 > 9/20

Hence, 8: 13 > 9: 20.

(v) 1: 2 or 13: 27 It can be written as 1: 2 = 1/2 and 13: 27 = 13/27 LCM of 2 and 27 is 54 Multiplying both the terms by relevant numbers to make denominator as 54 $1/2 = (1/2) \times (27/27) = 27/54$ and $13/27 = (13/27) \times (2/2) = 26/54$ We know that 27 > 26 So we get 27/54 > 26/54We can write it as 1/2 > 13/27

Hence, 1: 2 > 13: 27.

2. Give two equivalent ratios of 6: 8. Solution:

The given ratio = 6: 8 It can be written as = 6/8Dividing the fraction by 2 we get $6/8 = (6/8) \div (2/2) = 3/4$ Hence, 3: 4 is an equivalent ratio of 6: 8

Multiply the fraction by 2 we get $6/8 = (6/8) \times (2/2) = 12/16$ Hence, 12: 16 is an equivalent ratio of 6: 8

So, 3: 4 and 12: 16 are the equivalent ratios of 6: 8.

3. Fill in the following blanks: 12/20 = □/5 = 9/□ Solution:

It is given that $12/20 = \Box/5 = 9/\Box$ We know that LCM of 20 and 5 is 20 It can be written as 20/4 = 5

Dividing the fraction by 4 $12/20 = (12/20) \times (4/4) = 3/5$ So the first number is 3 and the ratio is 3/5.

In the same way,



Consider $2/3 + 3/5 = 9/\square$ We know that 9/3 = 3Multiply the fraction by 3 $3/5 = (3/5) \times (3/3) = 9/15$ So the second number is 15 and the ratio is 9/15.





EXERCISE 9.3

1. Which of the following statements are true? (i) 16: 24 = 20: 30 (ii) 21: 6 = 35: 10 (iii) 12: 18 = 28: 12 (iv) 51: 58 = 85: 102 (v) 40 men: 200 men = Rs 5: Rs 25 (vi) 99 kg: 45 kg = Rs 44: Rs 20 Solution:

(i) 16: 24 = 20: 30 It can be written as 16/24 = 20/30Dividing 16/24 by 4/4 and 20/30 by 5/5 $(16/24) \div (4/4) = (20/30) \div (5/5)$ On further calculation 4/6 = 4/6We get 2/3 = 2/3

Hence, 16: 24 = 20: 30 is true.

(ii) 21: 6 = 35: 10 It can be written as 21/6 = 35/10Dividing 21/6 by 3/3 and 35/10 by 5/5 $(21/6) \div (3/3) = (35/10) \div (5/5)$ On further calculation 7/2 = 7/2

Hence, 21: 6 = 35: 10 is true.

(iii) 12: 18 = 28: 12 It can be written as 12/18 = 28/12On further calculation $6/9 \neq 14/6$

Hence, 12: 18 = 28: 12 is false.

(iv) 51: 58 = 85: 102 It can be written as 51/58 = 85/102On further calculation $51/58 \neq 5/6$

Hence, 51: 58 = 85: 102 is false.

(v) 40 men: 200 men = Rs 5: Rs 25

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It can be written as 40/200 = 5/25 We get 40/200 = 1/5 and 5/25 = 1/5

Hence, 40 men: 200 men = Rs 5: Rs 25 is true.

(vi) 99 kg: 45 kg = Rs 44: Rs 20 It can be written as 99/45 = 44/20Dividing the fraction by 9 $(99/45) \div (9/9) = (44/20) \div (9/9)$ On further calculation 11/5 = 11/5

Hence, 99 kg: 45 kg = Rs 44: Rs 20 is true.

2. Find which of the following are in proportion:
(i) 8, 16, 6, 12
(ii) 6, 2, 4, 3
(iii) 150, 250, 200, 300
Solution:

(i) 8, 16, 6, 12
We know that
8: 16 = 8/16 = 1/2
6: 12 = 6/12 = 1/2
So we get 8/16 = 6/12

Therefore, 8, 16, 6, 12 are in proportion.

(ii) 6, 2, 4, 3 We know that 6: 2 = 6/2 = 3/14: 3 = 4/3So we get $3/1 \neq 4/3$

Therefore, 6, 2, 4, 3 are not in proportion.

(iii) 150, 250, 200, 300 We know that 150: 250 = 150/250 = 3/5200: 300 = 200/300 = 4/6 = 2/3So we get $3/5 \neq 2/3$

Therefore, 150, 250, 200, 300 are not in proportion.

3. Find x in the following proportions:
(i) x: 6 = 55: 11
(ii) 18: x = 27: 3
(iii) 7: 14 = 15: x



(iv) 16: 18 = x: 96 Solution:

(i) x: 6 = 55: 11 It can be written as x/6 = 55/11We get x/6 = 5/1On further calculation x = 5 (6) = 30 (ii) 18: x = 27: 3 It can be written as

It can be written as 18/x = 27/3We get 18/x = 9/1On further calculation x = 18/9 = 2

(iii) 7: 14 = 15: x It can be written as 7/14 = 15/xWe get 1/2 = 15/xOn further calculation x = 15 (2) = 30

(iv) 16: 18 = x: 96 It can be written as 16/18 = x/96We get 8/9 = x/96On further calculation x = 8/9 (96) = 256/3

4. Set up all proportions from the numbers 9, 150, 105, 1750. Solution:

The proportions from the numbers are 9: 150 = 3: 509: 105 = 3: 359: 1750 150: 9 = 50: 3 150: 105 = 10: 7 150: 1750 = 3: 35 105: 9 = 35: 3 105: 150 = 7: 10 105: 1750 = 3: 50 1750: 91750: 150 = 35: 3



1750: 105 = 50: 3

Hence, the proportions that are formed are 9: 150 :: 105: 1750 150: 9 :: 1750: 105 1750: 150 :: 105: 9 9: 105 :: 150: 1750

5. Find the other three proportions involving terms of each of the following:
(i) 45: 30 = 24: 16
(ii) 12: 18 = 14: 21
Solution:

(i) 45: 30 = 24: 16 can be written as 3: 2 in simplest form So the other three proportions involving terms are 45: 24 = 30: 16 can be written as 15: 8 in simplest form 30: 45 = 16: 24 can be written as 2: 3 in simplest form 16: 30 = 24: 45 can be written as 8: 15 in simplest form

(ii) 12: 18 = 14: 21 can be written as 2: 3 in simplest form So the other three proportions involving terms are 12: 14 = 18: 21 can be written as 6: 7 in simplest form 21: 18 = 14: 12 can be written as 7: 6 in simplest form 18: 12 = 21: 14 can be written as 3: 2 in simplest form

6. If 4, x, 9 are in continued proportion, find the value of x. Solution:

We know that 4, x, 9 are in continued proportion It can be written as 4: x :: x: 9 We get 4/x = x/9On further calculation $x^2 = 9$ (4) = 36 So we get x = 6

7. If in a proportion, the first, second and fourth terms are 32, 112 and 217 respectively, find the third term. Solution:

It is given that in a proportion the first, second and fourth terms are 32, 112 and 217 Consider x as the third term We can write it as 32: 112 :: x: 217 On further calculation 32/112 = x/217So we get x = 32/112 (217) = 62



8. Show that the following numbers are in continued proportion:

(i) 36, 90, 225 (ii) 48, 60, 75 (iii) 16, 84, 441 Solution:

(i) 36, 90, 225 Consider the fraction 36/90By dividing the fraction by 18 We get 36/90 = 2/5

Consider the fraction 90/225By dividing the fraction by 45 We get 90/225 = 2/5

Hence, 36: 90 :: 90: 225.

(ii) 48, 60, 75 Consider the fraction 48/60By dividing the fraction by 12 We get 48/60 = 4/5

Consider the fraction 60/75By dividing the fraction by 15 We get 60/75 = 4/5

Hence, 48: 60 :: 60: 75.

(iii) 16, 84, 441 Consider the fraction 16/84 By dividing the fraction by 4 We get 16/84 = 4/21

Consider the fraction 84/441 By dividing the fraction by 21 We get 84/441 = 4/21

Hence, 16: 84 :: 84: 441.

9. The ratio of the length of a school ground to its width is 5: 2. Find its length if the width is 40 metres. Solution:

It is given that Ratio of length of a school ground to its width = 5: 2



Width of the school ground = 40 mSo the length of the school ground = 5/2 (40) = 100 m

Hence, the length of the school ground is 100 m.

10. The ratio of the sale of eggs on a Sunday to that of the whole week of a grocery shop was 2: 9. If the total sale of eggs in the same week was Rs 360, find the sale of eggs on Sunday. Solution:

It is given that

Ratio of the sale of eggs on a Sunday to that of the whole week of a grocery shop = 2: 9 We know that the sale of eggs in a week is Rs 9 and on Sunday is Rs 2 If eggs of Rs 1 is sold in a week, the cost of eggs on Sunday = Rs 2/9If the total sale of eggs in the same week was Rs 360, the sale of eggs on Sunday = 2/9 (360) = Rs 80

Hence, the sale of eggs on Sunday is Rs 80.

11. The ratio of copper and zinc in an alloy is 9: 7. If the weight of zinc in the alloy is 9.8 kg, find the weight of copper in the alloy. Solution:

It is given that Ratio of copper and zinc in an alloy = 9: 7 We know that If the weight of zinc is 7 kg then the weight of copper is 9 kg If the weight of zinc is 1 kg then the weight of copper = 9/7 kg So if the weight of zinc is 9.8 kg then the weight of copper = 9/7 (9.8) = 12.6 kg

Hence, the weight of copper in the alloy is 12.6 kg.

12. The ratio of the income to the expenditure of a family is 7: 6. Find the savings if the income is Rs 1400. Solution:

It is given that Ratio of the income to the expenditure of a family = 7: 6 We know that saving = total income – expenditure So we get Ratio of saving to the income = [7 - 6]: 7 = 1: 7 It is given that income = Rs 1400 So the saving of the family = 1/7 (1400) = Rs 200

Hence, the saving of the family is Rs 200.

13. The ratio of story books in a library to other books is 1: 7. The total number of story books is 800. Find the total number of books in the library. Solution:

It is given that Ratio of story books in a library to other books = 1: 7 Consider the ratio as x



So the number of story books = x Number of other books = 7xWe know that Total number of story books = 800Number of other books = $7 \times 800 = 5600$ Total number of books = 5600 + 800 = 6400

Hence, the total number of books in the library is 6400.





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EXERCISE 9.4

1. The price of 3 metres of cloth is Rs 79.50. Find the price of 15 metres of such cloth. Solution:

It is given that Price of 3 m of cloth = Rs 79.50 We get Price of 1 m of cloth = 79.50/3 = Rs 26.5 So the price of 15 m of cloth = 26.5 (15) = Rs 397.50

Hence, the price of 15 m of such cloth is Rs 397.50.

2. The cost of 17 chairs is Rs 9605. Find the number of chairs that can be purchased in Rs 56500. Solution:

No. of chairs purchased for Rs 9605 = 17We get No. of chairs purchased for Rs 1 = 17/9605So the number of chairs purchased for Rs 56500 = 17/9605 (56500) = 100

Hence, 100 chairs can be purchased in Rs 56500.

3. Three ferryloads are needed to carry 150 people across a river. How many people will be carried on 4 ferryloads? Solution:

We know that No. of people required to carry 3 ferryloads = 150We get No. of people required to carry 1 ferryload = 150/3 = 50So the number of people required to carry 4 ferryloads = 4(50) = 200

Hence, 200 people are required to carry 4 ferryloads.

4. If 9 kg of rice costs Rs 120.60, what will 50 kg of such a quality of rice cost? Solution:

It is given that Cost of 9 kg rice = Rs 120.60 We know that Cost of 1 kg rice = 120.60/9 = Rs 13.4So the cost of 50 kg rice = 13.4 (50) = Rs 670

Hence, 50 kg of such a quality of rice costs Rs 670.

5. A train runs 200 kilometres in 5 hours. How many kilometres does it run in 7 hours? Solution:

Distance travelled by train in 5 hours = 200 km



We know that Distance travelled by train in 1 hour = 200/5 = 40 km So the distance travelled by train in 7 hours = 40 (7) = 280 km

Hence, the train runs 280 km in 7 hours.

6. 10 boys can dig a pitch in 12 hours. How long will 8 boys take to do it? Solution:

It is given that 10 boys can dig a pitch in 12 hours We know that the time taken by one boy = 10(12) = 120 hours So the time taken by 8 boys to dig the pitch = 120/8 = 15 hours

Hence, 8 boys will take 15 hours to dig the pitch.

7. A man can work 8 hours daily and finishes a work in 12 days. If he works 6 hours daily, in how many days will the same work be finished? Solution:

It is given that

A man can work 8 hours daily and finishes a work in 12 days If he works for one hour, then the time taken to finish the work = $8 \times 12 = 96$ days If he works 6 hours daily, the days required to finish the work = 96/6 = 16 days

Hence, the man requires 16 days to finish the same work.

8. Fifteen post cards cost Rs 2.25. What will be the cost of 36 post cards? How many postcards can be bought in Rs 45? Solution:

It is given that Cost of fifteen post cards = Rs 2.25 We know that Cost of one post card = Rs 2.25/15So the cost of 36 post cards = 2.25/15 (36) = Rs 5.40

We get No. of postcards that can be purchased in Rs 1 = 15/2.25Number of postcards that can be bought in Rs 45 = 15/2.25 (45) = 300

Hence, the cost of 36 post cards is Rs 5.40 and 300 post cards can be bought in Rs 45.

9. A rail journey of 75 km costs Rs 215. How much will a journey of 120 km cost? Solution:

It is given that Cost of rail journey of 75 km = Rs 215 We know that Cost of rail journey of 1 km = Rs 215/75



So the cost of rail journey of 120 km = 215/75 (120) = Rs 344

Hence, the cost of rail journey of 120 km is Rs 344.

10. If the sales tax on a purchase worth Rs 60 is Rs 4.20. What will be the sales tax on the purchase worth Rs 150? Solution:

It is given that Sales tax on a purchase worth Rs 60 = Rs 4.20We know that Sales tax on a purchase worth Rs 1 = Rs 4.20/60So the sales tax on the purchase worth Rs 150 = 4.20/60 (150) = Rs 10.50

Hence, the sales tax on the purchase worth Rs 150 is Rs 10.50.

11. The cost of 17 chairs is Rs 19210. Find the number of such chairs that can be purchased in Rs 113000? Solution:

It is given that No. of chairs purchased in Rs 19210 = 17We know that No. of chairs purchased in Rs 1 = 17/19210So the number of chairs that can be purchased in Rs 113000 = 17/19210 (113000) = 100

Hence, 100 chairs can be purchased in Rs 113000.

12. A car travels 165 km in 3 hours(i) How long will it take to travel 440 km?(ii) How far will it travel in 7 hours?Solution:

Distance travelled by car = 165 km in 3 hours So the speed of car = Distance/ time = 165/3 = 55 km per hour

(i) Time taken to travel 440 km = 440/55 = 8 hours

(ii) Distance covered in 7 hours = 55(7) = 385 km

13. 2 dozens of oranges cost Rs 60. Find the cost of 120 similar oranges? Solution:

It is given that Cost of 2 dozens of oranges = Rs 60 We know that Cost of 1 orange = Rs 60/24So the cost of 120 similar oranges = 60/24 (120) = Rs 300

Hence, the cost of 120 similar oranges is Rs 300.



14. A family of 4 members consumes 6 kg of sugar in a month. What will be the monthly consumption of sugar, if the number of family members becomes 6? Solution:

It is given that Amount of sugar used by a 4 members family = 6 kg We know that Amount of sugar used by 1 member = 6/4 kg So the sugar consumed by 6 members of a family = 6/4 (6) = 9kg

Hence, 9 kg is the monthly consumption of sugar, if the number of family members becomes 6.

15. The weight of 45 folding chairs is 18 kg. How many such chairs can be loaded on a truck having a capacity of carrying 4000 kg load? Solution:

It is given that No. of folding chairs weighing 18 kg = 45We know that No. of folding chairs weighing 1 kg = 45/18So the number of folding chairs weighing 4000 kg = 45/18 (4000) = 10000

Hence, 10000 chairs can be loaded on a truck having a capacity of carrying 4000 kg load.



OBJECTIVE TYPE QUESTIONS

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Mark the correct alternative in each of the following:

1. A ratio equivalent of 2 : 3 is

(a) 4:3
(b) 2:6
(c) 6:9
(d) 10:9
Solution:

The option (c) is correct answer. We know that 6: 9 when divided by 3 we get 2: 3.

2. The angles of a triangle are in the ratio 1 : 2 : 3. The measure of the largest angle is

(a) 30°
(b) 60°
(c) 90°
(d) 120°
Solution:

The option (c) is correct answer. We know that the sum of all the angles = 180° So the largest angle = $3/(1 + 2 + 3) \times 180$ We get

Largest angle = $3/6 \times 180 = 90^{\circ}$

3. The sides of a triangle are in the ratio 2 : 3 : 5. If its perimeter is 100 cm, the length of its smallest side is

- (a) 2 cm (b) 20 cm (c) 3 cm (d) 5 cm
- Solution:

The option (b) is correct answer. We know that the length of smallest side = $100 \times 2/(2 + 3 + 5) = 200/10 = 20$ cm

4. Two numbers are in the ratio 7 : 9. If the sum of the numbers is 112, then the larger number is

(a) 63
(b) 42
(c) 49
(d) 72
Solution:

The option (a) is correct answer. Consider x as the largest number So we get 7x + 9x = 11216x = 112x = 112/16 = 7



Here

 $7x = 7 \times 7 = 49$ $9x = 9 \times 7 = 63$ Hence, the largest number is 63.

5. Two ratio 384 : 480 in its simplest form is (a) 3 : 5 (b) 5 : 4 (c) 4 : 5 (d) 2 : 5 Solution:

The option (c) is correct answer. 384: 480 can be written as 384/480 = 4/5 when divided by 96

6. If A, B, C, divide Rs 1200 in the ratio 2 : 3 : 5, then B's share is
(a) Rs 240
(b) Rs 600
(c) Rs 380
(d) Rs 360
Solution:

The option (d) is correct answer. So B's share = $1200 \times 3/(2 + 3 + 5)$ On further calculation B's share = $1200 \times 3/10 = \text{Rs } 360$

7. If a bus travels 126 km in 3 hours and a train travels 315 km in 5 hours, then the ratio of their speeds is
(a) 2 : 5
(b) 2 : 3
(c) 5 : 2
(d) 25 : 6

Solution:

The option (b) is correct answer. We know that speed = distance/time So the speed of bus = 126/3 = 42 km/h Speed of train = 315/5 = 63 km/h So the ratio of their speeds = 42: 63 = 2: 3

8. The ratio of male and female employees in a multinational company is 5 : 3. If there are 115 male employees in the company, then the number of female employees is

(a) 96 (b) 52 (c) 69

(d) 66

Solution:

The option (c) is correct answer.



Consider x as the number of female employees So we get 5/3 = 115/xBy cross multiplication $5x = 115 \times 3 = 345$ By division x = 345/5 = 69

9. Length and width of a field are in the ratio 5 : 3. If the width of the field is 42 m, then its length is
(a) 50 m
(b) 70 m
(c) 80 m

(d) 100 m

Solution:

The option (b) is correct answer. It is given that length and width of a field = 5: 3 Consider x m as the length Width of the filed = 42 m So the length can be written as 5/3 = x/42By cross multiplication $3x = 42 \times 5 = 210$ By division x = 210/3 = 70

10. If 57 : x = 51 : 85, then the value of x is
(a) 95
(b) 76
(c) 114
(d) None of these Solution:

The option (a) is correct answer. It can be written as 57/x = 51/85By cross multiplication $57 \times 85/51 = x$ So we get x = 95

11. The ratio of boys and girls in a school is 12 : 5. If there are 840 girls in the school, then the number of boys is

(a) 1190 (b) 2380

(c) 2856

(d) 2142

Solution:

The options are not correct.



Consider x as the number of boys Ratio of boys and girls = 12: 5 It can be written as 12/5 = x/840By cross multiplication $x = 12/5 \times 840 = 2016$

12. If 4, a, a, 36 are in proportion, then a =
(a) 24
(b) 12
(c) 3
(d) 24
Solution:

The option (b) is correct answer. It is given that 4, a, a, 36 are in proportion We can write it as 4 : a :: a : 36 So we get 4/a = a/36By cross multiplication $4 \times 36 = a \times a$ We get $a^2 = 144$ So a = 12

13. If 5 : 4 : : 30 : x, then the value of x is
(a) 24
(b) 12
(c) 3/2
(d) 6
Solution:

The option (a) is correct answer. It can be written as 5/4 = 30/xBy cross multiplication $x = 30 \times 4/5 = 24$

14. If a, b, c, d are in proportion, then
(a) ab = cd
(b) ac = bd
(c) ad = bc
(d) None of these
Solution:

The option (c) is correct answer. It is given that a, b, c, d are in proportion We can write it as a : b :: c : dSo we get a/b = c/d



By cross multiplication ad = bc

15. If a, b, c, are in proportion, then
(a) a² = bc
(b) b² = ac
(c) c² = ab
(d) None of these
Solution:

The option (b) is correct answer. It is given that a, b, c are in proportion We can write it as a : b :: b : cSo we get a/b = b/cBy cross multiplication $b^2 = ac$

16. If the cost of 5 bars of a soap is Rs. 30, then the cost of one dozen bars is

(a) Rs 60
(b) Rs 120
(c) Rs 72
(d) Rs 140
Solution:

The option (c) is correct answer. Consider Rs x as the cost of one dozen bars It can be written as 30/5 = x/12So we get $x = 30/5 \times 12 = \text{Rs } 72$

17. 12 men can finish a piece of work in 25 days. The number of days in which the same piece of work can be done by 20 men, is

(a) 10 days
(b) 12 days
(c) 15 days
(d) 14 days
Solution:

The option (c) is correct answer. Consider x days required by 20 men to do the same work 20/12 = 25/xSo we get $x = 12 \times 25/20 = 15$ days

18. If the cost of 25 packets of 12 pencils each is Rs 750, then the cost of 30 packets of 8 pencils each is(a) Rs 600(b) Rs 720



(c) Rs 640
(d) None of these
Solution:
The option (a) is correct answer.
We know that
Cost of 300 pencils = Rs 750
So consider Rs x as the cost of 240 pencils
It can be written as
750: 300 :: x: 240
So we get
Cost of 240 pencils = 750/300 × 240 = Rs 600

19. If a, b, c are in proportion, then

(a) a : b : : b : c (b) a : b : : c : a (c) a : b : : c : b (d) a : c : : b : c Solution:

The option (a) is correct answer. We know that a, b, c are in proportion So we get a: b :: b: c It can be written as $ac = b^2$

20. The first, second and fourth terms of a proportion are 16, 24 and 54 respectively. The third term is

(a) 32
(b) 48
(c) 28

(d) 36

Solution:

The option (d) is correct answer. Consider x as the third term We can write it as 16: 24 = x: 54So we get 16/24 = x/54By cross multiplication $x = 16/24 \times 54$ We get x = 36