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Class: 7
Subject: Mathematics
Topic: Ratio and Proportion
No. of Questions: 20

Q1. The comparison of two quantities of the same kind by means of division is termed as ____.

Sol: Ratio

Q2. The two quantities to be compared are called the _____ of the ratio.

sol: terms

Q3. The first term of the ratio is called the _____ and the second term is called the _____.

sol: Antecedent (numerator) and the consequent (denominator).

Q4. In a ratio, only two quantities of the _____ unit can be compared.

sol: same

Q5. If the terms of the ratio have common factors, we can reduce it to its lowest terms by cancelling the _____.

sol: common terms (By fact)

Q6. When both the terms of a ratio are multiplied or divided by the same number (other than zero) the ratio remains _____ .The obtained ratios are called_____.

Sol: unchanged, equivalent ratios. (By fact)

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Q7. In a ratio the order of the terms is very important. (Say True or False)

sol: True

Q8. Ratios are mere numbers. Hence units are not needed. (Say True or False)

sol: True (By fact)

Q9. Equality of two ratios is called a _____. If $a,b;c,d$ are in proportion, then$a:b::c:d$.

sol: Proportion (By fact)

Q10. In a proportion, the product of extremes =_____

sol: product of means (By fact)

Q11. Find 5 equivalent ratios of 2:7

Sol. (We can get 5 equivalent ratio's by multiplying a common factor to the numerator and denomination. Like 2 gives us 4:14. Therefore equivalent ratios of 2:7 are 4:14, 6:21, 8:28, 10:35, 12:42.)

Q12. Reduce 270 : 378 to its lowest term.

Sol. 5:7, Dividing the numerator and denominator by 54.

Q13. Find the ratio of 9 months to 1 year

Sol. 9:12 ; 1 year = 12 months ; the ratio is = 3:4.

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Q14. If a class has 60 students and the ratio of boys to girls is 2:1, find the number of boys and girls.

Sol. No. of boys = 2 x 60 / 3 = 40
No. of girls = 1 x 60 / 3 = 20

Q15. A ribbon is cut into 3 pieces in the ratio 3: 2: 7. If the total length of the ribbon is 24 m, find the length of each piece.

Sol. Length of 1^{st} piece = 3 x 24 / 12 = 6 m
Length of 2^{nd} piece = 2 x 24 / 12 = 4 m
Length of 3^{rd} piece = 7 x 24 / 12 = 14 m

Q16. The ratio of boys to girls in a class is 4 : 5. If the number of boys is 20, find the number of girls.

Sol. Let the number of girls be x
∴ Total number of Students = 20 + x
According to the given condition
$20 = \frac{4}{9}(20 + x)$
$5 \times 9 = 20 + x \Rightarrow x = 25$
No. of girls = 25

Q17. If A : B = 4 : 6, B : C = 18 : 5, find the ratio of A : B : C

.

Sol. A : B = 4 : 6
B : C = 18 : 5
L.C.M. of 6, 18 = 18
A : B = 12 : 18
B : C = 18 : 5
A : B : C =12 : 18 : 5

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Q18. Fill in the blanks:

(i) Ratio of 20 minutes to 2 hrs.

(ii) $\frac{24}{18} = \frac{\quad}{3} = \frac{8}{\quad}$

(iii) Are 13, 39 and 7, 21 is proportion ?_____

Sol. (i) 20 / 120 ; as 2 hours = 120 min. ; The ration = 1 : 6

(ii) 24 / 18 = 4/3 (cacelling 6 from numerator and denominator as common factor)

= 8/6 (cancelling 3 as common factor)

(iii) Yes , 13:39 = 1 : 3 and 7 : 21 = 1 :3 ; are proportional.

Q19. Match the following :-

If a, b, c,d are first, second, third and fourth term of proportion, then

1. First and fourth terms are	(a) product of middle values (b×c)
2. Second and third terms are	(b) Extreme values
3. Product of extremes (axd)	(c) middle values.

Sol. 1 and(b) , by definition

2 and (c) , by definition

3 and (a) , by definition

Q20. Solve

(i) Divide 50 pen in the ratio 2 : 3

(ii) The length and breadth of a rectangular field are in the ratio 5 : 4. If length is 20 m. for breadth of the field

(iii) IF the cost of 12 m of cloth is Rs. 300, find the cost of 8m cloth.

Sol. (i) 2 × 50/5 = 20 and 3 × 50 /5 = 30 : 20 and 30

(ii) Length = 5 * x /9 = 20 : x = 36 ; Breadth = 16 m

(iii) 12 / 300 = 8 / x

X = 200

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