

# Today's Learning – Day 2

## Mathematics | Topic: Ratio & Proportion

### 1■■ Clear Theory (Easy Language)

Ratio shows comparison between two quantities of the same type. Proportion means equality of two ratios. This topic is very important for Railway exams and used in Time & Work, Speed & Distance and Age problems.

### 2■■ Important Formulas / Rules

$$a:b = a/b$$

$$a:b = c:d \Rightarrow ad = bc$$

$$\text{If } a:b = m:n \Rightarrow a=mk, b=nk$$

$$\text{If } x:y = y:z \Rightarrow y^2 = xz$$

### ■ Quick Tricks

Simplify ratio

Convert units before solving

Add ratio parts for division problems

## ■ 30 MCQs with Answers & Explanations

**Q1. Simplify 20:30**

Answer: 2:3

Explanation: Divide by 10

**Q2. Ratio equal to 3:5**

Answer: 6:10

Explanation: Multiply by 2

**Q3.  $a:b=4:7$ ,  $a=20$**

Answer: 35

Explanation:  $k=5$

**Q4. Divide 600 in ratio 2:3**

Answer: 240,360

Explanation: Parts=5

**Q5.  $x:y=5:8$ ,  $x/y$**

Answer:  $5/8$

Explanation: Direct

**Q6. 0.5:2.5**

Answer: 1:5

Explanation: Multiply by 10

**Q7.  $a:b=7:9$ ,  $(a+b):b$**

Answer: 16:9

Explanation: Add ratios

**Q8.  $4:5=20:x$**

Answer: 25

Explanation: Cross multiply

**Q9. Age ratio 3:4,  $A=18$**

Answer: 24

Explanation: Multiply

**Q10. Divide 450 in ratio 4:5**

Answer: 180,270

Explanation: Parts=9

**Q11. 25%:50%**

Answer: 1:2

Explanation: Convert

**Q12.  $a:b=6:7$ ,  $3a:2b$**

Answer: 9:14

Explanation: Multiply

**Q13. Boys:girls=5:4, total=360**

Answer: 160

Explanation:  $4/9 \times 360$

**Q14.  $x:y=y:z$  then**

Answer:  $y^2=xz$

Explanation: Property

**Q15.  $3/4 : 5/6$**

Answer: 9:10

Explanation: Cross

**Q16. 1 hour : 30 min**

Answer: 2:1

Explanation: Convert

**Q17. 2:3=8:x**

Answer: 12

Explanation: Cross

**Q18. 50:2**

Answer: 25:1

Explanation: Divide

**Q19. Divide 1000 in 7:3**

Answer: 700,300

Explanation: Parts=10

**Q20. a:b=4:9, b:c=6:5**

Answer: 8:18:15

Explanation: LCM

**Q21. 15:20**

Answer: 3:4

Explanation: Simplify

**Q22. 2kg:500g**

Answer: 4:1

Explanation: Units

**Q23. 30 of 120**

Answer: 1:4

Explanation: 30/120

**Q24. A:B=5:6 sum=44**

Answer: 20,24

Explanation: Parts=11

**Q25. x:y=3:5 sum=40**

Answer: 15,25

Explanation: k=5

**Q26. 8:12**

Answer: 2:3

Explanation: Divide

**Q27. 40min:2hr**

Answer: 1:3

Explanation: Convert

**Q28. A:B=7:3, B:C=5:2**

Answer: 35:15:6

Explanation: LCM

**Q29. 120 in 5:7**

Answer: 50,70

Explanation: Parts=12

**Q30. 2/3 : 4/5**

Answer: 5:6

Explanation: Cross

