

RRB NTPC - PRACTICE SET

Answers with Explanation (Math & GI)

1. (b) As, TEN $\Rightarrow 20 + 5 + 14 \Rightarrow 39 \Rightarrow 93$
 And PEN $\Rightarrow 16 + 5 + 14 \Rightarrow 35 \Rightarrow 53$
 Similarly,

FAN $\Rightarrow 6 + 1 + 14 \Rightarrow 21 \Rightarrow \boxed{12}$

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2. (b)
 $363 \rightarrow 3 + 6 + 3 = 12 \rightarrow 1 + 2 = 3$
 $489 \rightarrow 4 + 8 + 9 = 21 \rightarrow 2 + 1 = 3$
 $579 \rightarrow 5 + 7 + 9 = 21 \rightarrow 2 + 1 = 3$
 $471 \rightarrow 4 + 7 + 1 = 12 \rightarrow 1 + 2 = 3$

3. (d)

4. (d) $9\frac{1}{11} = \frac{100}{11}, 7\frac{9}{13} = \frac{100}{13}$

$5\frac{15}{17} = \frac{100}{17}$

But, $5\frac{6}{19} = \frac{101}{19}$

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5. (d)

6. (b) C = 3; $3 \times 9 = 27 \Rightarrow \frac{24}{27}$
 L = 12; $12 \times 2 = 24 \Rightarrow \frac{24}{27}$

E = 5; $5 \times 9 = 45 \Rightarrow \frac{56}{45}$
 N = 14; $14 \times 4 = 56 \Rightarrow \frac{56}{45}$

7. (b)

8. (a)

(9-10):

Students	Class	Stay	Hindi	Math	Social Science	Science
Ramesh	(IV)	Away		✓		
Kailash	(IV)	Near	✓		✓	✓
Avinash	(V)	Away	✓	✓	✓	✓
Jagan	(VI)	Away				

9. (c) 10. (c)

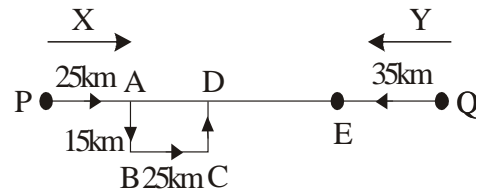
11. (b) $G \xrightarrow{+3} J \xrightarrow{+3} M \xrightarrow{+3} P \xrightarrow{+3} S$
 $4 \xrightarrow{\times 2+1} 9 \xrightarrow{\times 2+2} 20 \xrightarrow{\times 2+3} 43 \xrightarrow{\times 2+4} 90$
 $T \xrightarrow{-2} R \xrightarrow{-2} P \xrightarrow{-2} N \xrightarrow{-2} L$

\therefore J10R is wrong.

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12. (c)

13. (a)

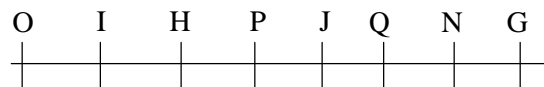


Let X and Y be the two buses.
 Bus X travels along the path PA, AB, BC, CD
 $AD = BC = 25$ km
 So, $PD = PA + AD = 50$ km.
 Bus Y travels 35 km upto E.
 \therefore Distance between two buses
 $= PQ - (PD + QE) = [150 - (50 + 35)]$ km
 $= 65$ km.

14. (a)

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(15-16):



15. (d) 16. (d)

17. (a) $6 * 5 = (6 \times 5) \times 3 + 1 = 91$
 $8 * 7 = (8 \times 7) \times 3 + 1 = 169$
 $10 * 7 = (10 \times 7) \times 3 + 1 = 211$

Similarly,

$11 * 10 \Rightarrow (11 \times 10) \times 3 + 1 = 331$

18. (d)

19. (c) The series is : abc/aqbc/aabbq/aqbbcc/a

20. (d)



22. (b)

Let the number of women x
 Number of men 2x
 $\therefore 2x - 10 = x + 5$
 $\therefore x = 15$
 \therefore Women = 15 and men = $2 \times 15 = 30$
 \therefore Total passenger at Delhi = $30 + 15 = 45$

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23. (d)

1	K/M/R
2	K/M/R
3	J
4	K/M/R
5	Q
6	P
7	N
8	L

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24. (a) $35 \div 7 - 14 + 28$
 $= 5 - 14 + 28 = 33 - 14 = 19$

25. (b)

26. (b)

27. (d)

28. (d)



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29. (d) Clearly, $(2 + 3)^2 = 25$, $(15 + 6)^2 = 441$,
 $(10 + 7)^2 = 289$.
 So missing number $= (12 + 13)^2 = 625$

30. (a)

31. (b)

32. (a) $\cot 18^\circ \left(\cot 72^\circ \cdot \cos^2 22^\circ + \frac{1}{\tan 72^\circ \cdot \sec^2 68^\circ} \right)$
 $= \cot 18^\circ \cdot \cot 72^\circ \cdot \cos^2 22^\circ + \frac{\cot 18^\circ}{\tan 72^\circ \cdot \sec^2 68^\circ}$
 $= \cot 18^\circ \cdot \tan 18^\circ \cdot \cos^2 22^\circ + \frac{\cot 18^\circ}{\cot 18^\circ} \times \cos^2 68^\circ$
 $= \cos^2 22^\circ + \cos^2 68^\circ$
 $= \cos^2 22^\circ + \sin^2 22^\circ = 1$

33. (a)

34. (b) $2 = x + \frac{1}{1 + \frac{1}{3 + \frac{1}{4}}}$

$$\Rightarrow 2 = x + \frac{1}{1 + \frac{1}{\frac{12+1}{4}}}$$

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$$\Rightarrow 2 = x + \frac{1}{1 + \frac{4}{13}}$$

$$\Rightarrow 2 = x + \frac{1}{\frac{13+4}{13}}$$

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$$\Rightarrow 2 = x + \frac{13}{17} \Rightarrow x = 2 - \frac{13}{17}$$

$$= \frac{34 - 13}{17} = \frac{21}{17}$$

35. (a) Let original rate of rice be ₹ x per kg.

$$\text{Reduced rate} = ₹ \left[(100 - 6.25) \times \frac{1}{100} \times x \right]$$

$$= ₹ \frac{15x}{16} \text{ per kg}$$

According to the question,

$$\frac{120}{\frac{15x}{16}} - \frac{120}{x} = 1$$

$$\Rightarrow \frac{128}{x} - \frac{120}{x} = 1$$

$$\therefore x = 8$$

$$\therefore \text{Reduced rate} = ₹ \left(\frac{15}{16} \times 8 \right) \text{ per kg}$$

$$= ₹ 7.50 \text{ per kg}$$

36. (a) Two mutually prime number have common factor 1,

$$\text{HCF} = 1, \text{ LCM} = A \times B$$

37. (c) Let the third number be x. Then, second number = 3x.

$$\therefore \text{First number} = \frac{3x}{2}$$

$$\text{Average} = \frac{1}{3} \left(x + 3x + \frac{3x}{2} \right)$$

$$= \frac{1}{3} \left(4x + \frac{3x}{2} \right) = \frac{11x}{6}$$

$$\therefore \frac{11x}{6} = 44 \Rightarrow x = \left(44 \times \frac{6}{11} \right) = 24$$

38. (c) Suppose A worked for x days.

According to question,

$$\frac{x}{28} + \frac{(x+17)}{35} = 1$$

$$\Rightarrow \frac{5x + 4(x+17)}{140} = 1$$

$$\Rightarrow 5x + 4x + 68 = 140$$

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$$\Rightarrow 9x = 140 - 68 = 72$$

$$\Rightarrow x = 8$$

\therefore A worked for 8 days.

39. (c)

40. (b) LCM of 4, 6, 10, 15 = 60
Least number of 6 digits
= 100000

The least number of 6 digits which is exactly divisible by 60 = 100020

\therefore Required number (N)

$$= 100020 + 2 = 100022$$

Hence, the sum of digits

$$= 1 + 0 + 0 + 0 + 2 + 2 = 5$$

41. (c) Let the number of sides of polygon be n. Then

$$\therefore \frac{(2n-4)}{n} \times 90^\circ - \frac{360}{n} = 150$$

$$\Rightarrow \frac{(2n-4) \times 3}{n} - \frac{12}{n} = 5$$

$$\Rightarrow \frac{6n-12-12}{n} = 5$$

$$\Rightarrow 6n - 24 = 5n$$

$$\Rightarrow n = 24$$

42. (d) If the speed of the train be x kmph, then relative speed = (x - 3) kmph.

$$= (x - 3) \times \frac{5}{18} \text{ m/sec.}$$

$$\therefore \frac{300}{(x-3) \times \frac{5}{18}} = 33$$

$$\Rightarrow 5400 = 33 \times 5 (x - 3)$$

$$\Rightarrow 360 = 11(x - 3)$$

$$\Rightarrow 11x - 33 = 360$$

$$\Rightarrow x = \frac{393}{11} = 35 \frac{8}{11} \text{ kmph}$$

43. (b)

44. (a) Let the son's present age = x years

\therefore Father's age = (3x + 3) years.

After 3 years.

$$(3x + 3) + 3 = 2(x + 3) + 10$$

$$\Rightarrow 3x + 6 = 2x + 16$$

$$\Rightarrow x = 10$$

\therefore Father's present age = 3x + 3

$$= 3 \times 10 + 3 = 33 \text{ years}$$

45. (a) $\frac{x}{y} = \frac{3}{1} \Rightarrow \frac{x^3}{y^3} = \frac{27}{1}$

$$\Rightarrow \frac{x^3 - y^3}{x^3 + y^3} = \frac{27 - 1}{27 + 1}$$

(By componendo and dividendo)

$$= \frac{26}{28} = \frac{13}{14}$$

46. (b) $\left(\frac{3}{2+\sqrt{3}} - \frac{2}{2-\sqrt{3}} \right) \frac{1}{2-5\sqrt{3}}$

$$= \frac{6-3\sqrt{3}-4-2\sqrt{3}}{(2+\sqrt{3})(2-\sqrt{3})(2-5\sqrt{3})} = 1$$

47. (c) $(1^2+2^2+\dots+21^2) - (1^2+2^2+\dots+10^2)$

$$= \frac{21 \times 22 \times 43}{6} - \frac{10 \times 11 \times 21}{6}$$

$$= 3311 - 385 = 2926$$

48. (d)

49. (a) Interest = ₹ (81 - 72) = ₹ 9

Let the time be t years.

$$\therefore 9 = \frac{72 \times 25 \times t}{4 \times 100}$$

$$\Rightarrow t = \frac{9 \times 400}{72 \times 25} = 2 \text{ years}$$

50. (c) $(\tan 1^\circ \cdot \tan 89^\circ) \cdot (\tan 2^\circ \cdot \tan 88^\circ) \dots \tan 45^\circ$

$$= (\tan 1^\circ \cdot \cot 1^\circ) (\tan 2^\circ \cdot \cot 2^\circ) \dots 1$$

$$= 1$$

51. (b) Required average

$$= \frac{32 \times 60 + 33 \times 40}{72}$$

$$= \frac{1920 + 1320}{72} = \frac{3240}{72} = 45$$

52. (b) Let length be 3x and breadth be 2x

$$\therefore \text{Perimeter} = 2(\text{length} + \text{breadth})$$

$$= 2(3x + 2x) = 10x$$

\therefore According to question,

$$10x = 80\text{m}$$

$$\therefore x = 8\text{m}$$

$$\therefore \text{Breadth} = 2x = 2 \times 8 = 16 \text{ m}$$

53. (a)

54. (a) Let the M.P. be Rs 100.

Then, C.P. = Rs 64.

S.P. = Rs (100 - 12) = Rs 88.

Gain = Rs (88 - 64) = Rs 24.

$$\text{Gain \%} = \left(\frac{24}{64} \times 100 \right) \% = \frac{75}{2} \% = 37.5\%$$

55. (b) Let the boy had ₹ x.

Money given to first companion

$$= 80\% \text{ of } x = \frac{4x}{5}$$

$$\text{Remaining money} = x - \frac{4x}{5} = \frac{x}{5}$$

Money given to the another companion

$$= \frac{6}{100} \times \frac{x}{5} = \frac{3x}{250}$$

$$\text{Remaining money} = \frac{x}{5} - \frac{3x}{250}$$

$$= \frac{50x - 3x}{250} = \frac{47x}{250}$$

$$\therefore \frac{47x}{250} = \frac{47}{100}$$

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$$\Rightarrow x = \frac{47 \times 250}{47 \times 100} = 2.50$$

$$56. (c) \text{ Share of } (B + C) = \frac{1872}{9-3} \times (5+8) = ₹ 4056$$

