Target RBI Grade B 2023

Top 150 Questions

Quant

Lecture 2 – Simplification + Number Series

Calculations

3-5 Q

What we have to cover in Basic calculation

- Tables ✓ 1 to 10 〈100〉
- Sum ✓
- Multiplication ✓ 1 to 10 〈1000〉
- Square ✓ 1 to 25
- Square root ✓
- Cube ✓ 1 to 10 〈15〉
- Cube root ✓
- Basic percentage
- Basic fractions
- Classification of Numbers
- Basic rules of Surds and Indices

Simplification
Number Series
Data Interpretation
Quant

10 Months

1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20
3	6	9	12	15	18	21	24	27	30
4	8	12	16	20	24	28	32	36	40
5	10	15	20	25	30	35	40	45	50
6	12	18	24	30	36	42	48	54	60
7	14	21	28	35	42	49	56	63	70
8	16	24	32	40	48	56	64	72	80
9	18	27	36	45	54	63	72	81	90
10	20	30	40	50	60	70	80	90	100
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

$$56 \rightarrow 56$$
$$10 \quad 12 \rightarrow 112$$
$$15 \quad 18 \quad 168$$
$$20 \quad 24 \quad 224$$
$$25 \quad 30 \quad 280$$
$$30 \quad 36 \quad 336$$
$$35 \quad 42 \quad 392$$
$$40 \quad 48 \quad 448$$
$$45 \quad 54 \quad 504$$
$$50 \quad 60 \quad 560$$

$$\begin{array}{c} 93 \\ 47 \end{array} \Big] 2u$$
$$43 \overline{71} \quad 7$$

Practice
$\downarrow$
10 Minutes

$$56$$
$$7$$

$$35 \quad 42$$
$$392$$

$$\begin{array}{c} 43 \\ 52 \end{array} \Big]$$
$$\overline{2236}$$

$$1 \times 1$$
$$\downarrow \quad 3 \times 2 = 6$$
$$4 \times 2 + 5 \times 3 = 23$$
$$4 \times 5 = 20$$

$$\begin{array}{c} 8 \quad 9 \\ 7 \end{array} \Big)$$

$$56 \quad 63$$
$$\overline{623}$$

$$98$$
$$9$$

$$81 \quad 72$$
$$\overline{882}$$

$$\begin{array}{c} 72 \\ 81 \end{array} \quad 2$$
$$\overline{5832}$$

Square

Square

$1^2 = 1$

$2^2 = 4$

$3^2 = 9$

$4^2 = 16$

$5^2 = 25$

$6^2 = 36$

$7^2 = 49$

$8^2 = 64$

$9^2 = 81$

$10^2 = 100$ ✓

$11^2 = 121$

$12^2 = 144$

$13^2 = 169$

$14^2 = 196$

$15^2 = 225$

$16^2 = 256$

$17^2 = 289$

$18^2 = 324$

$19^2 = 361$

$20^2 = 400$

$21^2 = 441$

$22^2 = 484$

$23^2 = 529$

$24^2 = 576$

$25^2 = 625$

$1^2 = 1$
$2^2 = 4$
$3^2 = 9$
$4^2 = 16$
$5^2 = 25$
$6^2 = 36$
$7^2 = 49$
$8^2 = 64$
$9^2 = 81$
$10^2 = 100$

$43^2 \quad 4^2 \quad 3^2$

$4 \times 3 \times 2$

$16 \, 09$
$\quad 24$
$1 8 4 9$

74^2

$7 \times 4 \times 2$

$49 \, 16$
$\quad 56$
$5 4 7 6$

$\begin{array}{r} 43 \\ \times 43 \\ \hline 1849 \end{array}$ 2

83^2

$64 \, 09$
$\quad 48$
$6 8 8 9$

Square Root

Find the Square Root of following Numbers

① $\sqrt{1156}$ $\boxed{34}$

$\underbrace{11}\underbrace{56}_{\times\ 6}$

     36

$\begin{bmatrix} 3^2 = 9 \\ 4^2 = 16 \end{bmatrix}$

$3 \times 4 = 12$

② $\sqrt{2025}$ $\boxed{45}$

$\underbrace{20}\underbrace{25}_{\times}$

$\begin{bmatrix} 4^2 = 16 \\ 5^2 = 25 \end{bmatrix}$

20

③ $\sqrt{3136}$ 4

$\underbrace{31}\underbrace{36}$ $\boxed{56}$

$\begin{matrix} 5+6 \\ = 30 \end{matrix} \begin{bmatrix} 5^2 = 25 \\ 6^2 = 36 \end{bmatrix}$

④ $\sqrt{4489}$

$\underbrace{44}\underbrace{89}$

$C \begin{matrix} 6^2 = 36 \\ 7^2 = 49 \end{matrix}$

$6 \times 7 = 42$

63

$\boxed{67}$

$\begin{matrix} 1^2 = 1 \\ 9^2 = 81 \\ 2^2 = 4 \\ 8^2 = 64 \\ 3^2 = 9 \\ 7^2 = 49 \\ 4^2 = 16 \checkmark \\ 6^2 = 36 \checkmark \\ 5^2 = 25 \checkmark \\ 6^2 = 0 \checkmark \end{matrix}$

Unit digit
2,3,7,8
Perfect Square
X

Cube

Cube

$1^3 = 1$

$2^3 = 8$

$3^3 = 27$

$4^3 = 64$

$5^2 = 125$

$6^3 = 216$

$7^3 = 343$

$8^3 = 512$

$9^3 = 729$

$10^3 = 1000$

$11^3 = 1331$

$12^3 = 1728$ ✓

$13^3 = 2197$

$14^3 = 2744$

$15^3 = 3375$

Cube Root

Find the Cube root of following Numbers

① $32\underbrace{768}_{x}$ ③②

$3^3 = 27$
$4^3 = 64$

③ $\underbrace{157}\underbrace{464}_{x}$ ⑤④

$5^3 = 125$
$6^3 = 216$

② $79\underbrace{507}_{x}$ ④③

④ 274625

157 467 ✗

Comment

2400

100% = 2400

50% = 1200

25% = 600

53% of 1800   18

↓

50% + 3%

900 + 54

= 954

98% of 2750

$\frac{98}{100} \times 2750$ $\frac{49 \quad 55}{2}$

100% - 2%

=

2750 - 1% × 2

27.5 × 2

= 55

2695

2400

10% = 240

5% = 120

1% = 24

$$69\% \text{ of } 1800$$

$$70\% - 1\%$$

$$16$$

$$7 \times 10\%$$

$$1260 - 18$$

$$= 1242$$

$a\% \text{ of } b = b\% \text{ of } a$

$10\% \text{ of } 30 = 30\% \text{ of } 10$

$\downarrow \qquad\qquad \downarrow$

$3 \qquad\qquad 3$

$84\% \text{ of } 75$

$\dfrac{84}{100} \times 75$

$75\% \text{ of } 84$

$\downarrow$

$\boxed{25\%} \times 3$

$21 \times 3 = 63$

$$1 = 100\%$$

$$\frac{1}{2} = 50\%$$

$$\frac{1}{3} = 33\frac{1}{3}\% = 33.33\%$$

$$\frac{1}{4} = 25\%$$

$$\frac{1}{5} = 20\%$$

$$\frac{1}{6} = 16\frac{2}{3}\% = 16.66\%$$

$$\frac{1}{7} = 14\frac{2}{7}\% = 14.28\%$$

$$\frac{1}{8} = 12\frac{1}{2}\% = 12.5\%$$

$$\frac{1}{9} = 11\frac{1}{9}\% = 11.11\%$$

$$\frac{1}{10} = 10\%$$

$$\frac{1}{11} = 9\frac{1}{11}\% = 9.09\%$$

$$\frac{1}{12} = 8\frac{1}{3}\% = 8.33\%$$

$$\frac{1}{13} = 7\frac{9}{13}\% = 7.69\%$$

$$\frac{1}{14} = 7\frac{1}{7}\% = 7.14\%$$

$$\frac{1}{15} = 6\frac{2}{3}\% = 6.66\%$$

$$\frac{1}{16} = 6\frac{1}{4}\% = 6.25\%$$

$$\frac{1}{17} = 5\frac{15}{17}\% = 5.89\%$$

$$\frac{1}{18} = 5\frac{5}{9}\% = 5.55\%$$

$$\frac{1}{19} = 5\frac{5}{19}\% = 5.26\%$$

$$\frac{1}{20} = 5\%$$

$$\frac{1}{24} = 4\frac{1}{6}\% = 4.16\%$$
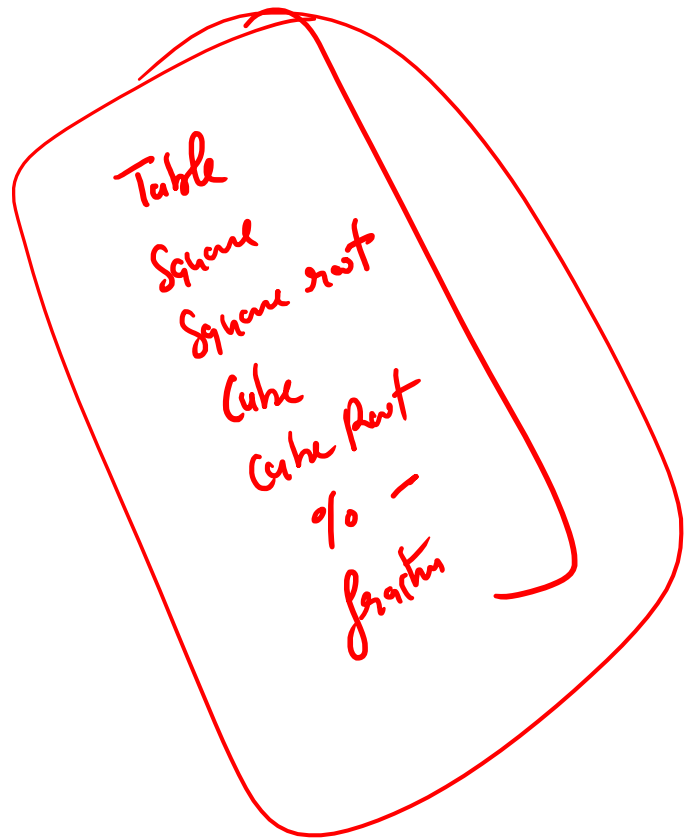
$$\frac{1}{25} = 4\%$$

$$\frac{1}{30} = 3\frac{1}{3}\% = 3.33\%$$

$$\frac{1}{32} = 3\frac{1}{8}\% = 3.125\%$$

$$\frac{1}{40} = 2\frac{1}{2}\% = 2.5\%$$

$$\frac{1}{50} = 2\%$$

Table
Square
Square root
Cube
Cube Root
%
fraction

$\dfrac{1}{9} = 11.11\%$ ✓

$\dfrac{2}{9} = 22.22\%$ ✓

$\dfrac{3}{9} = 33.33\%$ ✓

$\dfrac{4}{9} = 44.44\%$

$\dfrac{1}{9} \times 100$

$\dfrac{1}{8} = 12.5\%$

87.5%

$\dfrac{7}{8}$ ✓

What value should come in the place of (?) in the following questions?

Q.1) 30 % of 210 + 372 ÷ √961 + 1500 ÷ 4 =?

[1] 250

[2] 350

[3] 450

[4] 550

[5] 650

$3 \times 10\%$

$$63 + \frac{372}{31} + \frac{1500}{4}$$

$$75 + 375 = 450$$

BODMAS

$$\sqrt{\frac{961}{4}}$$ 31   9

$3^2 = 9$
$4^2 = 16$

what will come in place of '? ' in the following question?

Q.2) 56% of 325 – 12% of 800 + 4 =? % of 125

[1] 32
[2] 72
[3] 148
[4] 248
[5] 392

$325\% \text{ of } 56$

$300\% + 25\%$

$168 + 14$

$= 182$

$182 - 96 + 4 = \dfrac{x}{100} \times 125$

$\dfrac{18}{\cancel{90}} \times \dfrac{4}{\cancel{5}} = x$

(72)

Q3). In the given question contains a statement followed by Quantity I, Quantity II and Quantity III. Which of the following should be placed in the blank spaces of the expression "Quantity I__ Quantity II ___ Quantity III" from left to right with respect to the above statements?

Quantity I: Value of $(2^{30} - 2^{29})/2$
Quantity II: Value of 2^{28}
Quantity III: Value of $(256 * 1024)$

a) >, >
b) =, <
c) =, =
d) <, >
e) =, >

① $\dfrac{2^{30} - 2^{29}}{2} = \dfrac{2^{29}(2^1 - 1)}{2} = \dfrac{2^{29}}{2^1} = 2^{29-1} = 2^{28}$ ✓

② 2^{28}

③ $2^8 \times 2^{10} = 2^{8+10} = 2^{18}$ ✓

$2^{28} = 2^{28} > 2^{18}$

$2 \underline{)1024}$
$2 \underline{)512}$
$2 \underline{)256}$
$2 \underline{)128}$
$2 \underline{)64}$
$2 \underline{)32}$
$2 \underline{)16}$
$2 \underline{)8}$
$2 \underline{)4}$
2

2^{10}

Q.4) Statement I : $\sqrt[3]{5.832}$ + 35% of 6500 – x% of 1250 = 222.8

Statement II : 71.42% of 91 – 31.25% of 112 + 36^2 – 23.04 x 17.99 = y

Find the last digit of y^x.

[1] 6

[2] 4

[3] 2

[4] 8

[5] None of the above

30% + 5%

①

$3\sqrt{\dfrac{5832}{1000}}$ ✓

$1.8 + 1950 + 325 - \dfrac{x}{100} \times 1250 = 222.8$

$\dfrac{25}{2}$

$2276.8 - 222.8 = x \times \dfrac{25}{2}$

$\dfrac{82.16}{2054 \times 2}{25}$

$x = \underline{164.32}$

$\dfrac{1}{7} = 14.28$

$62.5\% = \dfrac{1}{16}$ ✓

$\dfrac{13}{\dfrac{5}{7} \times 91} - \dfrac{5}{16} \times 112 + 1176 - 414$

$65 - 35 + 762$

792

164.32 ✓

792

$2^4 = 16$

$36^2 \cdot \dfrac{936}{29}{1176}$

Rem = 1 → y

2

3

0 → ④

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Direction (5 – 6): Read the following information carefully and answer the questions based on it.

A sequence of numbers is given to you as below:

18 (A) (B) (C) (D) 124

Where, A = P² - Q

B – A = (P + 1) ² + Q

C – B = (P + 2) ² + Q

D – C = (P + 3) ² + Q

P = HCF of L and M, where L and M are co – primes

Q = Smaller root of K² - 2K – 8 = 0

Handwritten annotations:

Co-Prime HCF = 1

18 A B C D 124
3 5 12 26

$A = (1)^2 - (-2) = 1 + 2 = 3$

$B - 3 = 4 - 2 \quad B = 2 + 3 = 5$

$C - 5 = 9 - 2 \quad C = 12$

$D - 12 = 16 - 2 \quad D = 26$

$P = 1$

$Q = -2$

$K^2 - 2K - 8 = 0$

$K^2 - 4K + 2K - 8 = 0$

$K(K-4) + 2(K-4) = 0$

$(K-4)(K+2) = 0$

$K = 4, -2$

Q.5) How many numbers are divisible by 3, in the given sequence?

A. 2

B. 4

C. 3

D. 6

E. None of these

Q.6) Find the value of (A² + 3B + 5C – 4D).

A. – 20

B. - 10

C. - 18

D. - 30

E. None of these

Handwritten:

$3^2 + 3(5) + 5(12) - 4(26)$

$9 + 15 + 60 - 104$

$84 - 104$

$= -20$

Each question below contains a statement followed by Quantity I and Quantity II. You have to study the information along with the question and compare the value derived from Quantity I and Quantity II, then answer:

Q.7) Quantity I: Value of 'p' such that $\left(\sqrt{a^p}\right)^2 = \dfrac{a^4}{\sqrt{a^{16}}}$

$P = -4$

Quantity II: 1

[a] Quantity I > Quantity II

[b] Quantity I < Quantity II

[c] Quantity I ≥ Quantity II

[d] Quantity I ≤ Quantity II

[e] Quantity I = Quantity II or no relation

$a^p = \dfrac{a^4}{(a^{16})^{\frac{1}{2}}} = \dfrac{a^4}{a^8} = a^{4-8} = a^{-4} =$

$a^p = a^{-4}$

$P = -4$

$(a^m)^n = a^{mn}$

$a^m \times a^n = a^{m+n}$

$\dfrac{a^m}{a^n} = a^{m-n}$

Q.8) Quantity I: $\dfrac{a^3-b^3}{a-b} - 3ab$

Quantity II: $1 - \dfrac{1}{a} - \dfrac{1}{b}$

Note: a > 1 > b > 0

[a] Quantity I > Quantity II

[b] Quantity I < Quantity II

[c] Quantity I ≥ Quantity II

[d] Quantity I ≤ Quantity II

[e] Quantity I = Quantity II or no relation

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① $\dfrac{a^3 - b^3}{a-b} - 3ab$

$a = 2 \quad b = \dfrac{1}{2}$

$\dfrac{8 - \dfrac{1}{8}}{2 - \dfrac{1}{2}} - 3 \times 2 \times \dfrac{1}{2}$

$2\dfrac{63}{8} \times \dfrac{2}{3} - 3$

$= \dfrac{21}{4} - 3$

$= \dfrac{9}{4}$

$1 - \dfrac{1}{a} - \dfrac{1}{b}$

$1 - \dfrac{1}{2} - \dfrac{1}{1} \times 2$

$1 - \dfrac{1}{2} - 2$

$= -$

Logics

1. Sum
2. Subtraction
3. Multiplication
4. Divide
5. X ±
6. ÷ ±
7. Square
8. Cube

9. Square ±, $\frac{x}{\div}$
10. Cube ±, $\frac{x}{\div}$
11. Double / Triple Series
12. Illogical Series

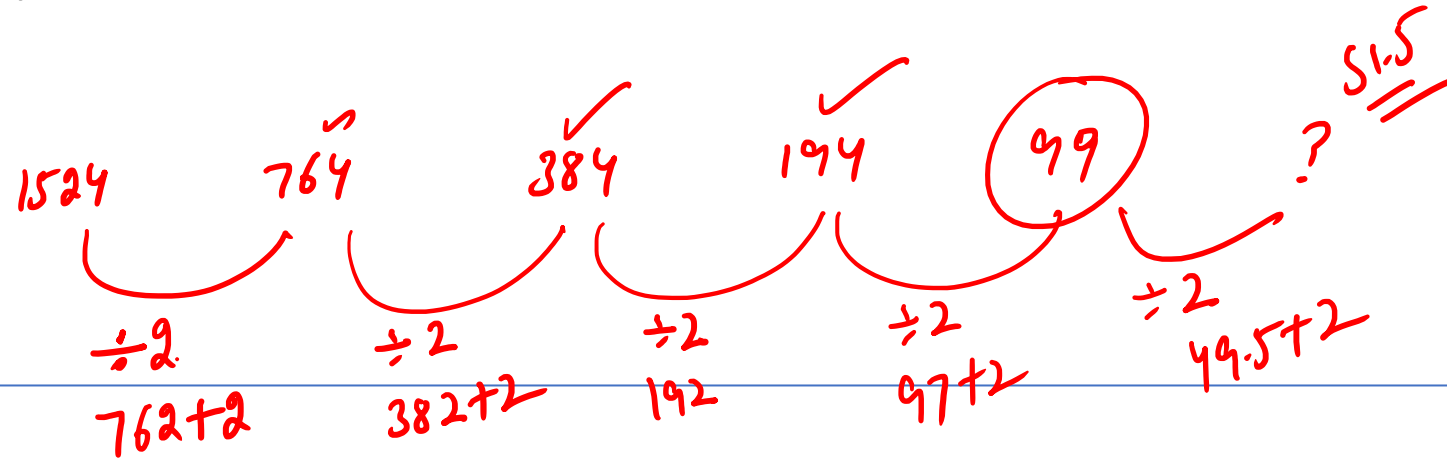Missing term
Wrong term

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What will come in place of question mark (?) in the following number series?

Q.9) 1524, 764, 384, 194, 99, ?

[1] 78.75
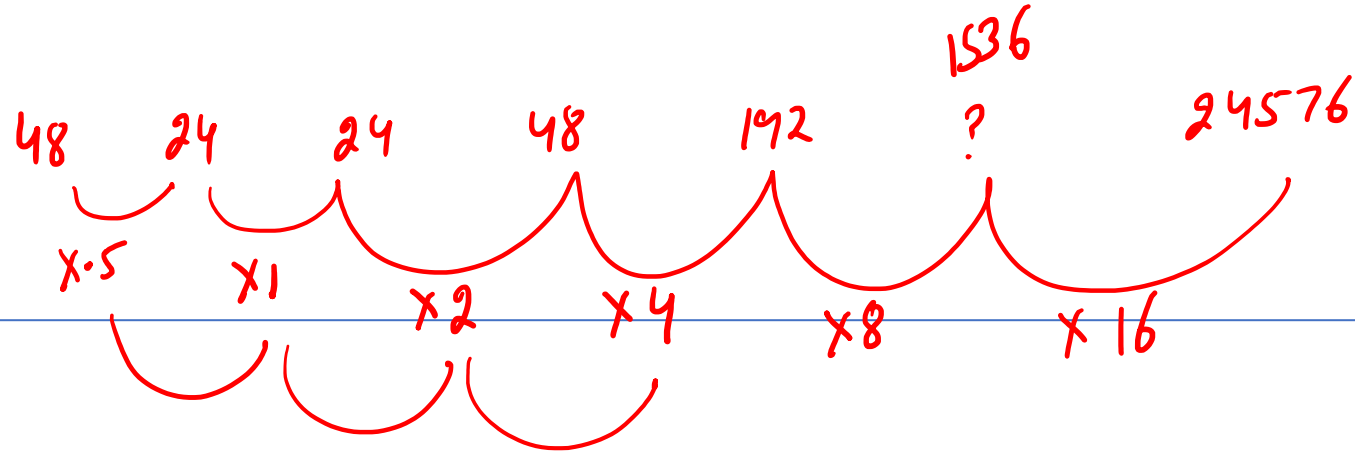[2] 66.5
[3] 58.25
[4] 72.5
[5] 51.5

1524   764   384   194   99   ?   51.5

÷2   ÷2   ÷2   ÷2   ÷2
762+2   382+2 192   97+2   49.5+2

Q.10) 48, 24, 24, 48, 192, ? , 24576

[1] 2178
[2] 1536
[3] 2592
[4] 3454
[5] 3820

48   24   24   48   192   1536   24576
                                          ?

X.5   X1   X2   X4   X8   X 16

Q.11) 2, 17, 121, 729, ?, 14601

[1] 3649
[2] 3278
[3] 3962
[4] 3783
[5] 3564

2   17   121   729   3649   14601
    ×8+1   ×7+2   ×6+3   ?
    16+1   119   726   ×5+4   ×4+5
                                        3645+4

What will come in place of question mark (?) in the following number series?

Q.12) 2772, 252, 1764, 352.8, 1058.4, ?

[1] 423.3

[2] 529.2

[3] 539.6

[4] 612.5

[5] 456.6

$\div, \times$

2772   252   1764   352.8   1058.4   529.2   ?

$\div 11$ $\times 7$ $\div 5$ $\times 3$ $\div 2$
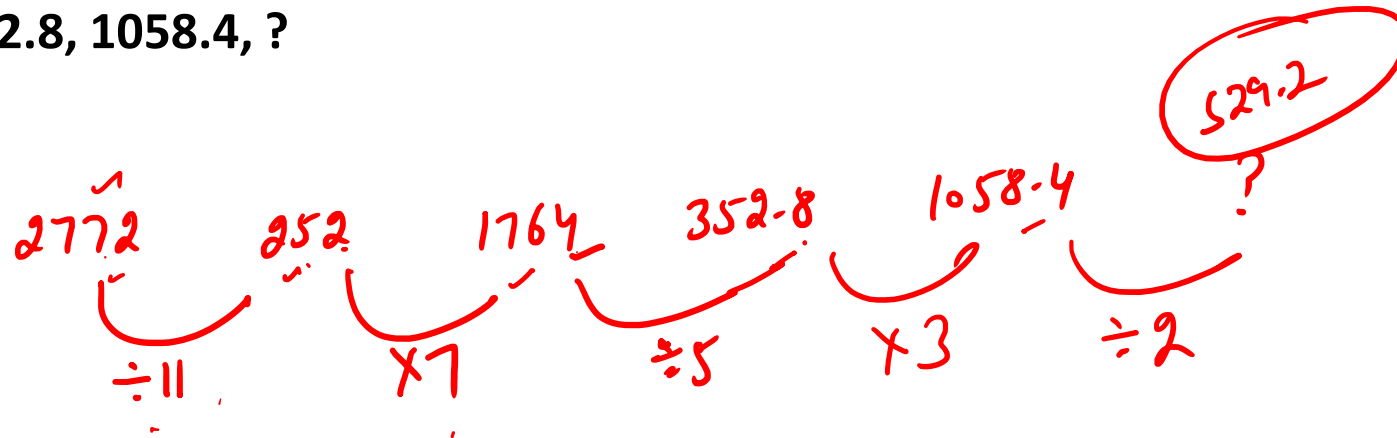
Prime No.

Q13). Direction: Find the wrong term in the given series:

800, 678, 579, 497, 434, 385, 349

A. 494

B. 385

C. 800

D. 579

E. 349

800   678   579   497   434 385 349
                                    384

-122 -99 -82 -63 -49 -36

$11^2 + 1$ $10^2 - 1$ $9^2 + 1$ $8^2 - 1$ $7^2 + 1$ $6^2 - 1$

$121 + 1$

RBI Grade B
2019
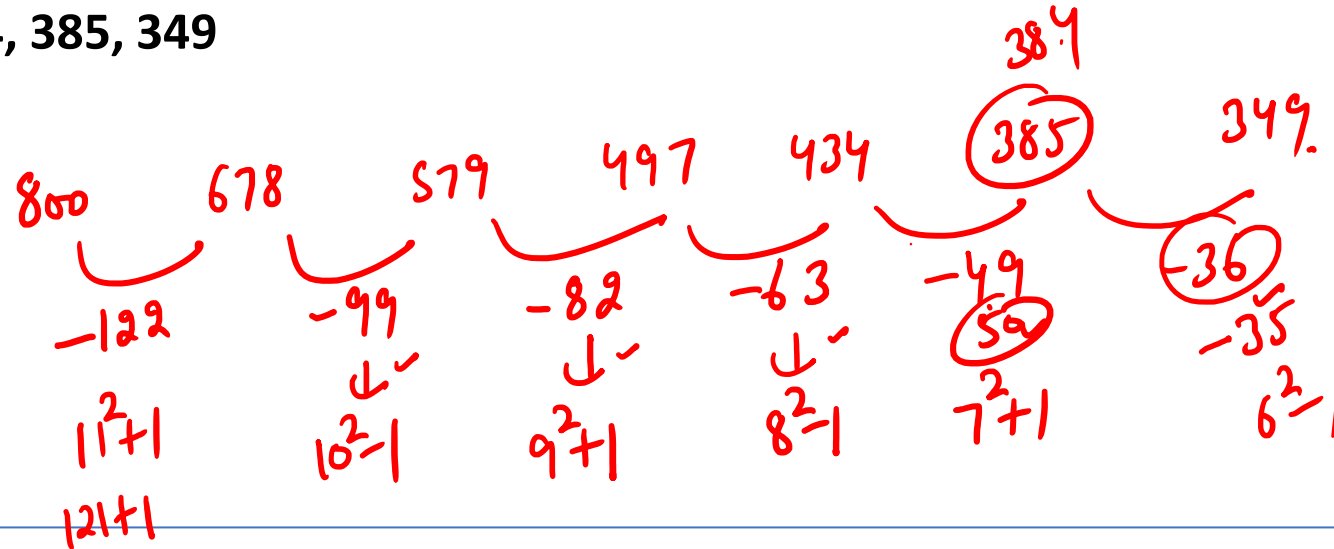
Q.14) Given below are two series with a wrong term each. Find the sum of the wrong terms of the two series.

Series I : 10 13.5 23.5 41.5 77.5 149.5

Series II : 7 9 14 27 47 77 119

[1] 37.5

[2] 20

[3] 27.5

[4] 41.5

[5] None of the above

Q.15) Given below are two series both of which has one missing term each. Find the sum of these missing terms?

Series I : 5 7 17 ? 115 245

Series II : 4 4 10 34 ? 214

[1] 150

[2] 141

[3] 120

[4] 194

[5] 209

① 5   7   17   ⭕47?   115   245

$+2$ $+10$ 30 $+68$ $+130$

2^3+2 3^3+3 $4^3+\cancel{2}4$ 5^3+5

1^3+1

47
94
─────
141

② 4   4   10   34   ⭕94?   214

$+0$ $+6$ $+24$ 60 $+120$

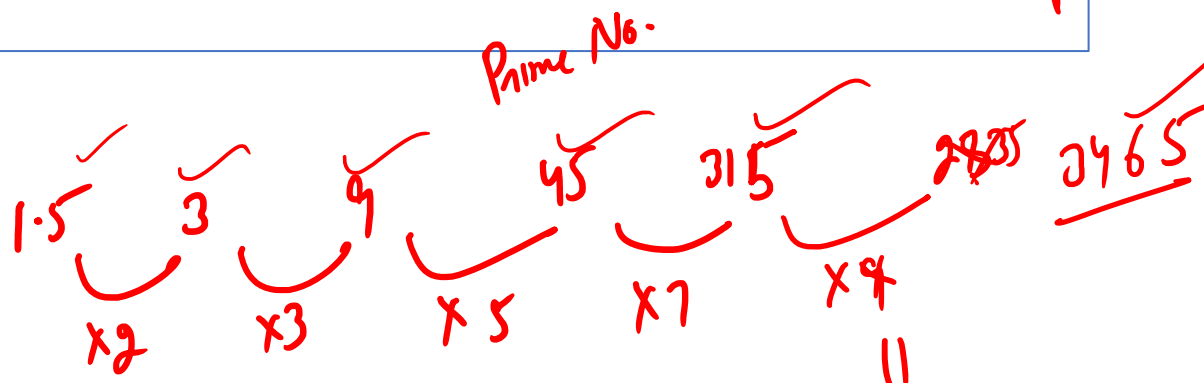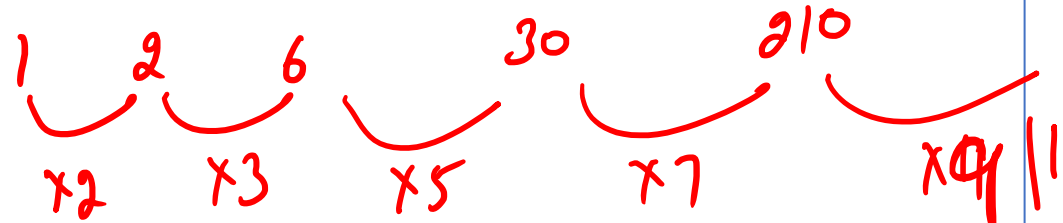3^3-3 4^3-4 5^2-5

1^3-1 2^3-2

The below are two series. Series I follows a certain pattern, follow the same pattern in Series II and answer the question given below :

Q.16) Series I : 1, 2, 6, 30, 210

Series II : 1.5 .... If 3465 is the nth term find the value of n.

[1] 5

[2] 7

[3] 6

[4] 9

[5] 11

1   2   6   30   210

×2   ×3   ×5   ×7   ×9 11

6th

Prime No.

1.5   3   9   45   315   2835   3465
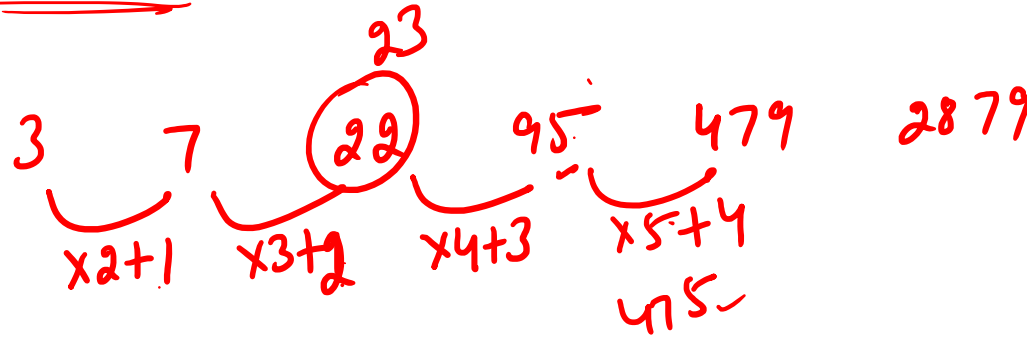
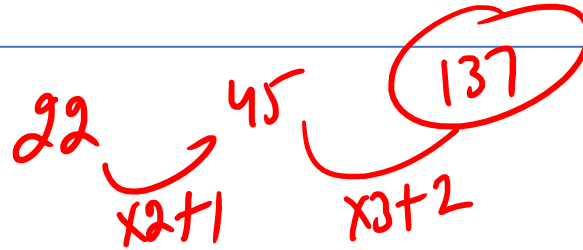×2   ×3   ×5   ×7   ×9

11

Q.17) A number series given below as I. A second number series as II having first term same as the wrong term of the series I. Find 3rd term of series II?

Series I. 3, 7, 22, 95, 479, 2879

A. 541

B. 137

C. 561

D. 551

E. None of these

(Handwritten work):

3   7   22 (23)   95   479   2879

×2+1   ×3+2   ×4+3   ×5+4   475

II

22   45   (137)

×2+1   ×3+2

I.18-20) A series is given below where the first term is marked as (a), the second as (b), third as (c) and so on.

Series – 100, 95, 105, 88, 114, ?

     (a) (b) (c) (d) (e) (f)
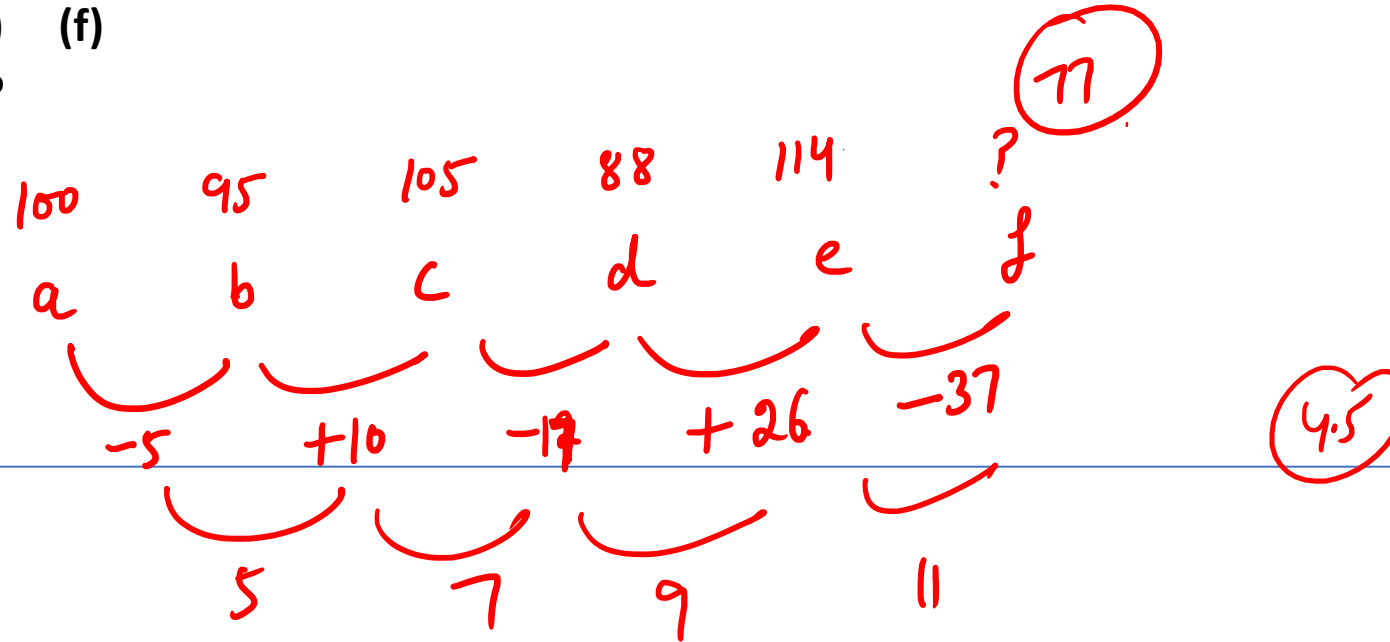
Q.18) What is the value of '(f)'?

[a] 67

[b] 87

[c] 77

[d] 74

[e] 81

100   95   105   88   114   ?   **77**

a   b   c   d   e   f

−5   +10   −17   +26   −37

5   7   9   11

4.5   7.5

A series is given below where the first term is marked as (a), the second as (b), third as (c) and so on.

Series – 100, 95, 105, 88, 114, ?

     (a) (b) (c) (d) (e)   (f)

Q.19) If a new series is made following the same pattern of the above series, where (a) is the third term, (b) is the fourth term, (c) is the fifth term and so on. Then find the second term of such a series.
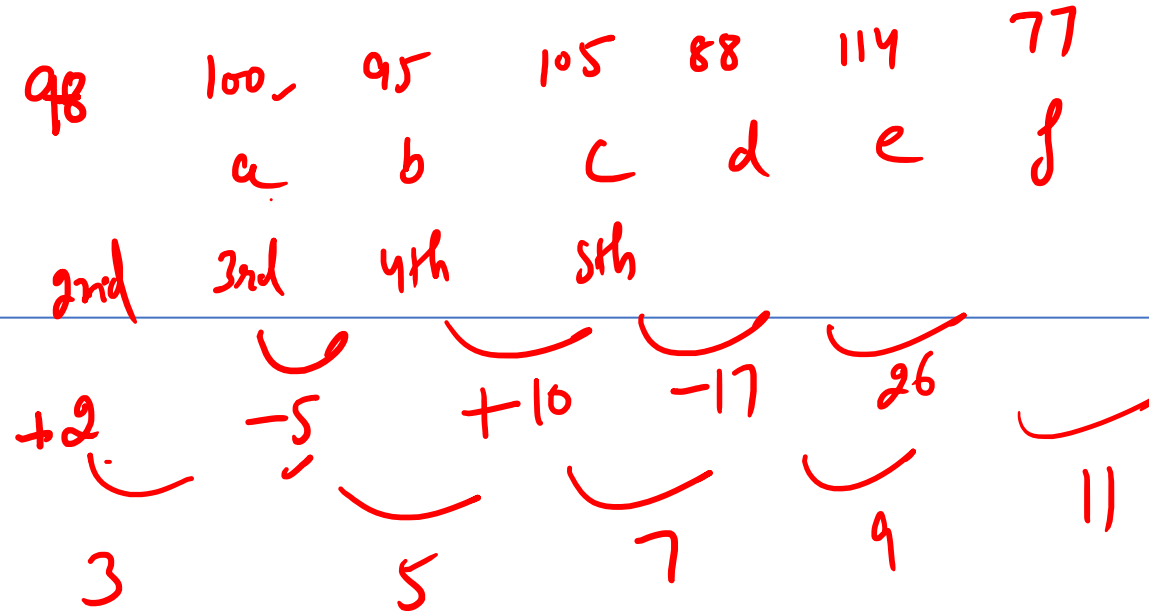
[a] 99

[b] 98

[c] 102

[d] 111

[e] None of the above

A series is given below where the first term is marked as (a), the second as (b), third as (c) and so on.

Series – 100, 95, 105, 88, 114, ?

      (a) (b) (c) (d) (e) (f)

Q.20) What minimum number should be added to the 'f+20' to get to the nearest perfect square.

[a] 4

[b] 1

[c] 7

[d] 3

[e] 6

$$77 + 20 = 97 + 3$$

$$100$$

Direction (21 – 22): Read the following information carefully and answer the questions based on it.
There is a number series given to you that follows a certain pattern.
Series 1. (P), (Q), (R), (S), (T), 3193
Following facts are also known about the variables in the series.

• **Value of P is the smaller root of the equation,**
$P^2 - 116P + 228 = 0$

• **Q = (A/13 + 1)**

• **R = [LCM of (A, B) / HCF of (42, 77)] – 53**

• **S = 2 x (R + 28) – HCF of (A, B)**

• **T = 150% of (S + 3A + 7B) – 51**

• **(A x B) = 546, Where B > 5 and A > B**

• **3A + 15B = 339**

Q21. If there is another series that starts with 50% of (S – R), follow the same pattern as that of series 1, and then find the 4th element of the series

a) 2017

b) 6097

c) 1017

d) 253

e) None of these

Q22. If there is another sequence (R), (S), 380,1080, (?) ,then find the value of the question mark (?).

a) 2040

b) 2080

c) 1980

d) 2240

e) None of these

Thank You

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