

IBM Exercise questions

Directions : *In each of the following questions, a number series is given with one term missing. Choose the correct alternative that will continue the same pattern and fill in the blank spaces.*

1. 1, 4, 9, 16, 25, (...)

(a) 35

(b) 36 **(Ans)**

(c) 48

(d) 49

Ans : The numbers are $1^2, 2^2, 3^2, 4^2, 5^2$.

\therefore Missing number = $6^2 = 36$.

2. 20, 19, 17, (...), 10, 5,

(a) 12

(b) 13

(c) 14 **(Ans)**

(d) 15

Ans : The Pattern is -1, -2, ...

\therefore Missing number = $17 - 3 = 14$.

3. 2, 3, 5, 7, 11, (...), 17

(a) 12

(b) 13 **(Ans)**

(c) 14

(d) 15

Ans : Clearly, the given series consists of prime numbers starting from 2. The prime number after 11 is 13. So, 13 is the missing number.

4. 6, 11, 21, 36, 56, (...)

(a) 42

(b) 51

(c) 81 **(Ans)**

(d) 91

Ans : The pattern is + 5, + 10, + 15, + 20,

\therefore Missing number = $56 + 25 = 81$.

5. 1, 6, 13, 22, 33, (...)

(a) 44

(b) 45

(c) 46 **(Ans)**

(d) 47

Ans : The pattern is + 5, + 7, + 9, + 11,

\therefore Missing number = $33 + 13 = 46$.

6. 3, 9, 27, 81, (...)

(a) 324

(b) 243 **(Ans)**

(c) 210

(d) 162

Ans : Each term of the given series is obtained by multiplying its preceding term by 3.

\therefore Missing number = $81 \times 3 = 243$.

7. 1, 9, 17, 33, 49, 73, (...)

(a) 97 **(Ans)**

(b) 98

(c) 99

(d) 100

Ans : The pattern is + 8, + 8, + 16, + 16, + 24, ...

\therefore Missing number = $73 + 24 = 97$.

8. 2, 5, 9, (...), 20, 27,

(a) 14 **(Ans)**

(b) 16

(c) 18

(d) 24

Ans : The pattern is + 3, + 4, ...

\therefore Missing number = $9 + 5 = 14$.

9. 5, 9, 17, 29, 45, (...)

(a) 60

(b) 65 (Ans)

(c) 68

(d) 70

Ans : The pattern is + 4, + 8, + 12, + 16, ...

\therefore Missing number = $45 + 20 = 65$.

10. 3, 7, 15, 31, 63, (...)

(a) 92

(b) 115

(c) 127 (Ans)

(d) 131

Ans : Each number in the series is the preceding number multiplied by 2 and then increased by 1.

Thus, $(3 \times 2) + 1 = 7$, $(7 \times 2) + 1 = 15$, $(15 \times 2) + 1 = 31$ and so on.

\therefore Missing number = $(63 \times 2) + 1 = 127$.

11. 1, 6, 15, (...), 45, 66, 91

(a) 25

(b) 26

(c) 27

(d) 28 (Ans)

Ans : The pattern is + 5, + 9, ..., + 21, + 25, ...

\therefore Missing number = $15 + 13 = 28$.

12. 1, 2, 3, 5, 8, (...)

(a) 45.5

(b) 39.5

(c) 30.5 (Ans)

(d) 40.5

Ans : Each terms in the series is the sum of the preceding two terms.

Thus, $1 + 2 = 3$; $2 + 3 = 5$; $3 + 5 = 8$ and so on.

\therefore Missing number = $5 + 8 = 13$.

13. 0.5, 1.5, 4.5, 13.5, (...)

(a) 45.5

(b) 39.5

(c) 30.5

(d) 40.5 **(Ans)**

Ans : Each terms of the series is obtained by multiplying the preceding term by 3.

\therefore Missing number = $13.5 \times 3 = 40.5$.

14. 121, 225, 361, (...)

(a) 441

(b) 484

(c) 529 **(Ans)**

(d) 729

Ans : The numbers are $11^2, 15^2, 19^2, \dots$ i.e. $11^2, (11 + 4 \times 1)^2, (11 + 4 \times 2)^2, \dots$

\therefore Missing number = $(11 + 4 \times 3)^2 = (23)^2 = 529$.

15. 0, 2, 8, 14, (...), 34

(a) 24 **(Ans)**

(b) 22

(c) 20

(d) 18

Ans : The numbers are $1^2 - 1, 2^2 - 2, 3^2 - 1, 4^2 - 2, \dots$

\therefore Missing number = $5^2 - 1 = 24$.

16. 19, 2, 38, 3, 114, 4, (...)

(a) 228

(b) 256

(c) 352

(d) 456 **(Ans)**

Ans : The sequence is a combination of two series :

I. 19, 38, 114, (.....) and II. 2, 3, 4

The pattern followed in I is $\times 2, \times 3, \dots$

\therefore Missing number = $114 \times 4 = 456$.

17. 1, 2, 3, 6, 9, 18, (...), 54

(a) 18

(b) 27 **(Ans)**

(c) 36

(d) 81

Ans : The numbers are alternately multiplied by 2 and $\frac{3}{2}$.

Thus, $1 \times 2 = 2$, $2 \times \frac{3}{2} = 3$, $3 \times 2 = 6$, $6 \times \frac{3}{2} = 9$ and so on.

\therefore Missing number = $18 \times \frac{3}{2} = 27$.

18. 4, 5, 9, 18, 34, (...)

(a) 43

(b) 49

(c) 50

(d) 59 **(Ans)**

Ans : The pattern is $+ 1, + 4, + 9, + 16, \dots$ i.e. $+ 1^2, + 2^2, + 3^2, + 4^2, \dots$

\therefore Missing number = $34 + 5^2 = 34 + 25 = 59$.

19. 3, 6, 18, 72, (...)

(a) 144

(b) 216

(c) 288

(d) 360 **(Ans)**

Ans : The pattern is $\times 2, \times 3, \times 4, \dots$

\therefore Missing number = $72 \times 5 = 360$.

20. 66, 36, 18, (...)

(a) 3

(b) 6

(c) 8 **(Ans)**

(d) 9

Ans : Each number in the series is the product of the digits of the preceding number.

Thus, $6 \times 6 = 36$, $3 \times 6 = 18$ and so on.

\therefore Missing number = $1 \times 8 = 8$.

21. 21, 25, 33, 49, 81, (...)

(a) 145 **(Ans)**

(b) 129

(c) 113

(d) 97

Ans : The pattern is $+ 4, + 8, + 16, + 32, \dots$ i.e. $+ 2^2, + 2^3, + 2^4 + 2^5, \dots$

\therefore Missing number = $81 + 2^6 = 81 + 64 = 145$.

22. 12, 32, 72, 152, (...)

(a) 312 **(Ans)**

(b) 325

(c) 515

(d) 613

Ans : The pattern is $+ 20, + 40, + 80, \dots$

\therefore Missing number = $152 + 160 = 312$.

23. 3, 6, 5, 20, 7, 42, 9, (...)

(a) 54

(b) 60

(c) 66

(d) 72 **(Ans)**

Ans : The sequence is a combination of two series :

I. 3, 5, 7, 9 and II. 6, 20, 42, (...)

The pattern followed in II is + 14, + 22,

∴ Missing number = $42 + 30 = 72$.

24. 1, 3, 4, 8, 15, 27, (...)

(a) 37

(b) 44

(c) 50 **(Ans)**

(d) 55

Ans : The sum of any three consecutive terms of the series gives the next term.

Thus, $1 + 3 + 4 = 8$; $3 + 4 + 8 = 15$; $4 + 8 + 15 = 27$ and so on.

∴ Missing number = $8 + 15 + 27 = 50$.

25. 2, 15, 41, 80, (...)

(a) 111

(b) 120

(c) 121

(d) 132 **(Ans)**

Ans : The pattern is + 13, + 26, + 39,

∴ Missing number = $80 + 52 = 132$.

26. 8, 10, 14, 18, (...), 34, 50, 66

(a) 24

(b) 25

(c) 26 **(Ans)**

(d) 27

Ans : The pattern is + 2, + 4, + 4, + 16, + 16.

∴ Missing number = $18 + 8 = 26$.

27. 1, 2, 6, 24, (...)

- (a) 60
- (b) 95
- (c) 120 **(Ans)**
- (d) 150

Ans : The pattern is $\times 2, \times 3, \times 4, \dots$

\therefore Missing number = $24 \times 5 = 120$.

28. 2, 3, 8, 63, (...)

- (a) 1038
- (b) 1998
- (c) 3008
- (d) 3968 **(Ans)**

Ans : Each term in the series is one less than the square of the preceding term.

Thus, $2^2 - 1 = 3, 3^2 - 1 = 8, 8^2 - 1 = 63$.

\therefore Missing term = $(63)^2 - 1 = 3969 - 1 = 3968$.

29. 95, 115.5, 138, (...), 189

- (a) 154.5
- (b) 162.5 **(Ans)**
- (c) 164.5
- (d) 166.5

Ans : The pattern is $+ 20.5, + 22.5, \dots$

\therefore Missing term = $138 + 24.5 = 162.5$

30. 4, 10, (...), 82, 244, 730

- (a) 24
- (b) 28 **(Ans)**
- (c) 77
- (d) 218

Ans : Each number in the series is the preceding number multiplied by 3 and then decreased by 2.

31. 4, 32, 128, (...)

- (a) 128
- (b) 144
- (c) 192
- (d) 256 **(Ans)**

Ans : The pattern is $\times 8, \times 4, \dots$

\therefore Missing term = $128 \times 2 = 256$.

32. 2, 5, 9, 19, 37, (...)

- (a) 76
- (b) 75 **(Ans)**
- (c) 74
- (d) 72

Ans : The pattern is $\times 2 + 1, \times 2 - 1, \times 2 + 1, \times 2 - 1, \dots$

\therefore Missing number = $37 \times 2 + 1 = 75$.

33. 24, 60, 120, 210, (...)

- (a) 300
- (b) 336 **(Ans)**
- (c) 420
- (d) 525

Ans : The pattern is $+ 36, + 60, + 90, \dots$ *i.e.*

$+ [6 \times (6 + 0)], + [6 \times (6 + 4)], + [6 \times (6 + 9)], \dots$

\therefore Missing number = $210 + [6 \times (6 + 15)] = 210 + 126 = 336$.

34. 165, 195, 255, 285, 345, (...)

- (a) 375
- (b) 420
- (c) 436 **(Ans)**
- (d) 390

Ans : Each number is 15 multiplied by a prime number 15×11 , 15×17 , 15×19 , 15×23 .

\therefore Missing term = $15 \times 29 = 435$.

35. 5, 17, 37, 65, (...),145

(a) 95

(b) 97

(c) 99

(d) 101 **(Ans)**

Ans : The numbers are $2^2 + 1$, $4^2 + 1$, $6^2 + 1$, $8^2 + 1$, ..., $12^2 + 1$.

\therefore Missing term = $10^2 + 1 = 101$.

36. 9, 11, 20, 31, (...),82

(a) 41

(b) 51 **(Ans)**

(c) 60

(d) 71

Ans : Each term in the series is the sum of the preceding two terms.

\therefore Missing number = $20 + 31 = 51$.

37. 5, 16, 49, 104, (...)

(a) 115

(b) 148

(c) 170

(d) 181 **(Ans)**

Ans : The pattern is $+ 11$, $+ 33$, $+ 55$, ..., *i.e.* $+ (11 \times 1)$, $+ (11 \times 3)$, $+ (11 \times 5)$,

\therefore Missing number = $104 + (11 \times 7) = 181$.

38. 34, 18, 10, 6, 4, (...)

(a) 0

(b) 1

(c) 2

(d) 3 **(Ans)**

Ans : Each term is divided by 2 and then increased by 1 to obtain the next term.

\therefore Missing term = $(4 \div 2) + 1 = 3$.

39. 462, 420, 380, (...), 306

(a) 322

(b) 332

(c) 342 **(Ans)**

(d) 352

Ans : The pattern is - 42, -40,

\therefore Missing number = $380 - 38 = 342$.

40. 3, 8, 22, 63, 185, (...)

(a) 550 **(Ans)**

(b) 310

(c) 295

(d) 285

Ans : The pattern is $\times 3 - 1$, $\times 3 - 2$, $\times 3 - 3$, $\times 3 - 4$, ...

\therefore Missing number = $(185 \times 3) - 5 = 550$.

41. 1, 2, 5, 12, 27, 58, 121, (...)

(a) 246

(b) 247

(c) 248 **(Ans)**

(d) 249

Ans : The pattern is $\times 2 + 0$, $\times 2 + 1$, $\times 2 + 2$, $\times 2 + 3$, $\times 2 + 4$, $\times 2 + 5$,

\therefore Missing number = $121 \times 2 + 6 = 248$.

42. 0.5, 0.55, 0.65, 0.8, (...)

(a) 0.9

(b) 0.82

(c) 1 (Ans)

(d) 0.95

Ans : The pattern is + 0.05, 0.10 + 0.15,

\therefore Missing number = $0.8 + 0.20 = 1$.

43. 3, 8, 13, 24, 41, (...)

(a) 70 (Ans)

(b) 75

(c) 80

(d) 85

Ans : The pattern followed is :

n th term + $(n + 1)$ th term + $(n + 1) = (n + 2)$ th term.

Thus, 1st term + 2nd term + 2 = 3rd term ;

2nd term + 3rd term + 3 = 4th term and so on.

\therefore Missing term = 6th term = 4th term + 5th term + 5
= $24 + 41 + 5 = 70$.

44. 97, 86, 73, 58, 45, (...)

(a) 34 (Ans)

(b) 54

(c) 55

(d) 56

Ans : The pattern is - 11, - 13, - 15, - 13,

\therefore Missing number = $45 - 11 = 34$.

45. 17, 19, 23, 29, (...),37

(a) 31 (Ans)

(b) 33

(c) 35

(d) 36

Ans : The given series consists of consecutive prime numbers starting from 17. The next prime number after 29 is 31.

So, the missing number is 31.

46. 5, 6, 9, 15, (...), 40

(a) 21

(b) 25 **(Ans)**

(c) 27

(d) 33

Ans : The pattern is + 1, + 3, + 6, i.e. + 1, + (1 + 2), + (1 + 2 + 3),

∴ Missing number = $15 + (1 + 2 + 3 + 4) = 25$.

47. 3, 12, 27, 48, 75, 108, (...)

(a) 147 **(Ans)**

(b) 162

(c) 183

(d) 192

Ans : The numbers are $3 \times 1^2, 3 \times 2^2, 3 \times 3^2, 3 \times 4^2, 3 \times 5^2, 3 \times 6^2, \dots$

∴ Missing number = $3 \times 7^2 = 3 \times 49 = 147$.

48. 134, 245, 356, 467, (...)

(a) 579

(b) 578 **(Ans)**

(c) 568

(d) 478

Ans : Each term is obtained by adding 111 to the preceding term.

∴ Missing number = $467 + 111 = 578$.

49. 6, 13, 28, (...)

(a) 56

(b) 57

(c) 58

(d) 59 **(Ans)**

Ans : The pattern is $x^2 + 1, x^2 + 2, \dots$

\therefore Missing number = $28^2 + 3 = 59$.

50. 563, 647, 479, 815, (...)

(a) 672

(b) 386

(c) 279

(d) 143 **(Ans)**

Ans : The pattern is $+ 84, - 168, + 336, \dots$ i.e. $+ 84, - (84 \times 2), + (84 \times 2^2), \dots$

\therefore Missing number = $815 - (84 \times 2^3) = 815 - 672 = 143$.

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