Chapter 2

Analogies

CHAPTER HIGHLIGHTS

- *Analogy*
- *Number Analogies*
- *Letter Analogies*
- *Verbal Analogies*

Analogy

Analogy means 'similarity' or 'similar relationship'. In questions on number or letter analogies, a pair, that has a certain relationship between them, is given. This number/letter pair is followed by a third number/letter. The student is expected to identify the relationship between the pair given and find out a FOURTH number such that the relationship between the third and the fourth is similar to the relationship that exists between the first and the second. (In some cases, it may not be the fourth one that has to be found out. The fourth one will be given and the student has to find out one of the other three, whichever is not given).

Number Analogies

Typical relationships between the numbers in a given pair can be any of the following:

- One number is a multiple of the other.
- One number is the square or square root of the other.
- One number is the cube or cube root of the other.
- The two numbers are squares of two other numbers which themselves are related. For example, the two numbers are squares of two consecutive integers or squares of two consecutive even integers or squares of two consecutive odd integers.
- The two numbers are such that they are obtained by subtracting a certain number from the squares or cubes of the two related numbers.
- The two numbers are such that they are obtained by adding a certain number to the squares or cubes of the two related numbers.
- The two numbers can be consecutive, even, odd, or prime numbers.

There can be many more combinations that one can think of but the student has to note an important point in solving questions on number analogies. In number series-related questions, since a series of numbers (more than two numbers) will be given, the relationship or pattern can be identified uniquely. In number analogies, since only two numbers are given, it may be possible to think of more than one relationship existing between the two numbers in the given pair. But, it should be kept in mind that generally, simple addition of one number or subtraction of one number is not what is given in number analogies. The questions try to test the insight that the student has got into the relationship between the numbers.

Let us take a few examples and understand the questions on number analogies.

Solved Examples

Example 1

Find the missing number 25 : 36 : : 49 : _____.
(A) 61 (B) 63 (C) 65 (D) 60

Solution

When the numbers in the question are considered the students tend to consider 25 and 36 as squares of two consecutive natural numbers. But, the answer choices does not consist of an answer suitable to the above logic. Hence, it is important that, the student keeps the answer choices in view in arriving at the logic.

$$25 + 11 = 36$$

Similarly, $49 + 11 = 60$

Example 2

Find the missing number 27 : 51 : : 83 : _____.
(A) 102 (B) 117 (C) 123 (D) 138

Solution

The given analogy can be written as

$$5^2 + 2 : 7^2 + 2 : : 9^2 + 2 : \_\_\_\_\_.$$

5 and 7 are successive odd numbers.

Similarly, next odd number to 9 is 11 and $11^2 + 2 = 121 + 2 = 123$.

Example 3

Find the missing number.

11 : 25 : : 17 : _____.
(A) 33 (B) 28 (C) 41 (D) 37

Solution

$$11 \times 2 + 3 = 22 + 3 = 25$$

Similarly, $17 \times 2 + 3 = 34 + 3 = 37$.

Letter Analogies

The questions in this area are similar to verbal analogies. Here, the questions are based on the relationship between two groups of letters (instead of two words as in verbal analogies). Typically, three sets of letters are given followed by a question mark (where a fourth set of letters is supposed to inserted). The student has to find the relation or order in which the letters have been grouped together in the first two sets of letters on the left hand side of the symbol : : and then find a set of letters to fit in place of the question mark so that the third and the fourth set of letters will also have the same relationship as the first and the second. The sequence or order in which the letters are grouped can be illustrated by the following examples.

Example 4

BDEG : DFGI : : HKMO : _____.
(A) ILNP (B) JMOP
(C) JMOQ (D) JNOQ

Solution

Two letters are added to each letter to get the next letters in the analogy.

B	D	E	G;	Similarly,	H	K	M	O
+2	+2	+2	+2		+2	+2	+2	+2
D	F	G	I		J	M	O	Q

Example 5

ACDF : CGJN : : BEHI : _____.
(A) DJNQ (B) DINQ
(C) DINR (D) DHNQ

Solution

A	C	D	F;	Similarly,	B	E	H	I
+2	+4	+6	+8		+2	+4	+6	+8
C	G	J	N		D	I	N	Q

Example 6

SUWY : LPTX : : PRTV : _____.
(A) INRU (B) INQU
(C) IMRU (D) IMQU

Solution

S	U	W	Y;	Similarly,	P	R	T	V
–7	–5	–3	–1		–7	–5	–3	–1
L	P	T	X		I	M	Q	U

Example 7

BCDE : DFHH : : FGHI : _____.
(A) LJPL (B) LKPL
(C) JKPJ (D) IKPL

Solution

B	C	D	E;	Similarly,	F	G	H	I
×2	+3	×2	+3		×2	+3	×2	+3
D	G	H	H		L	J	P	L

Verbal Analogies

Here, the questions are based on relationship between two words. In these kind of questions, three words are followed by a blank space, which the student has to fill up in such a way that the third and the fourth words have the same relationship between them as the first and the second words have. The following examples help in understanding the concepts.

Example 8

Gum : Stick : : Needle : _____
(A) Cloth (B) Prick
(C) Taylor (D) Stitch

Solution

Gum is used to stick and needle is used to stitch.

Example 9

Socks : Feet : _____ : Hands

(A) Arms (B) Shirt
(C) Gloves (D) Fingers

Solution

Socks are worn on feet, similarly gloves are worn on hands.

Example 10

Soft : Hard : : Cold : _____

(A) Hot (B) Shirt
(C) Gloves (D) Fingers

Solution

Soft and hard are antonyms; similarly, the antonym of cold is hot.

Exercises

Direction for questions 1 to 25: Find the missing term.

1. 97 : 89 : : 43 : _____
(A) 37 (B) 31 (C) 39 (D) 41

2. 196 : 256 : : 324 : _____
(A) 361 (B) 400 (C) 411 (D) 484

3. 121 : 169 : : 361 : _____
(A) 529 (B) 400 (C) 484 (D) 576

4. 125 : 343 : : 343 : _____
(A) 512 (B) 1331 (C) 1728 (D) 81

5. 4 : 256 : : 5 : _____
(A) 625 (B) 1025 (C) 525 (D) 875

6. 12 : 144 : : 18 : _____
(A) 160 (B) 180 (C) 190 (D) 150

7. 25 : 21 : : 59 : _____
(A) 42 (B) 46 (C) 76 (D) 56

8. 8 : 72 : : 10 : _____
(A) 95 (B) 106 (C) 99 (D) 90

9. 8 : 0.125 : : 4 : _____
(A) 0.5 (B) 0.4 (C) 0.35 (D) 0.25

10. 11 : 143 : : 19 : _____
(A) 443 (B) 450 (C) 420 (D) 437

11. 568 : 352 : : 732 : _____
(A) 516 (B) 496 (C) 526 (D) 536

12. 6 : 222 : : 9 : _____
(A) 738 (B) 720 (C) 729 (D) 744

13. 5 : 120 : : 8 : _____
(A) 520 (B) 504 (C) 448 (D) 512

14. 16 : 68 : : 36 : _____
(A) 216 (B) 210
(C) 222 (D) 226

15. 10 : 95 : : 16 : _____
(A) 218 (B) 318 (C) 248 (D) 102

16. 3829 : 3851 : : 2987 : _____
(A) 301 (B) 3007
(C) 3017 (D) 3023

17. 47 : 121 : : 89 : _____
(A) 183 (B) 187 (C) 193 (D) 195

18. NATURE : PEVASI : : ISOMERS : _____
(A) OTUNJTV (B) OTUNIST
(C) PUVNJST (D) OVTNJST

19. BAD : BBL : : JDFE : _____
(A) JHRI (B) JHPX
(C) JFTV (D) JHRT

20. FIELD : LRJXH : : CRICKET : _____
(A) FHRDXLJ (B) FJPDTLN
(C) FJRDXAL (D) FJRFVJN

21. TAP : SUZBOQ : : RED : _____
(A) QTDGDE (B) PSDEDF
(C) QSDFCE (D) QRDGBE

22. Train : Track : : Bus : _____
(A) Driver (B) Road
(C) Petrol (D) Passengers

23. Earth : Planet : : Carrot : _____
(A) Vegetable (B) Plant
(C) Cooking (D) Nut

24. Wood : Carpenter : : Iron : _____
(A) Goldsmith (B) Instrument
(C) Melting (D) Blacksmith

25. Pen : Write : : Knife : _____
(A) Vegetable (B) Cut
(C) Sharp (D) Shoot

Answer Keys

1. D	**2.** B	**3.** A	**4.** B	**5.** A	**6.** D	**7.** D	**8.** D	**9.** D	**10.** D
11. A	**12.** A	**13.** B	**14.** C	**15.** C	**16.** A	**17.** B	**18.** B	**19.** D	**20.** D
21. C	**22.** B	**23.** A	**24.** D	**25.** B					