

OLYMPIAD · MENTAL ABILITY · OLYMPIAD PREPARATION · SHORT NOTES

Chapter 2: Analogy and Classification (Odd One Out)

Topic-wise short notes with solved examples

How to find the relation in an analogy and the common property in a classification question, for words, numbers and letters.

1 What is an analogy?

- An analogy has the form **A : B :: C : D**, read "A is to B as C is to D". The relation between A and B is the same as the relation between C and D.
- Say the relation of the first pair in a full sentence, then apply the same sentence to the second pair.
- For example, "Pen is the tool used to write", so "Knife is the tool used to cut".

Relation	Example
Object and its group	Mango : Fruit :: Rose : Flower
Part and whole	Petal : Flower :: Page : Book
Tool and its work	Pen : Write :: Knife : Cut
Worker and place of work	Doctor : Hospital :: Teacher : School
Animal and its young one	Cow : Calf :: Dog : Puppy
Number and its square or cube	4 : 16 :: 5 : 25
Letters moved by a fixed step	CAT : DBU (every letter moves forward by one)

Example 1.1 Choose the word that completes the analogy. Bird : Nest :: Bee : ?

SOLUTION

A bird lives in a nest. A bee lives in a hive.

Hive

Example 1.2 Find the missing number. 6 : 36 :: 9 : ?

SOLUTION

The second number is the square of the first.

81

2 Number and letter analogies

- Try the square, the cube, the square plus or minus one, and the double. Test the rule on the **first** pair, then on the second pair.
- For letters, write the position of each letter (A = 1, ..., Z = 26) and find the step.

Example 2.1 Find the missing number. $5 : 124 :: 6 : ?$

SOLUTION

$5^3 - 1 = 124$, so the rule is "cube minus 1".

For 6: $6^3 - 1 = 216 - 1$.

215

Example 2.2 BOAT is to CPBU as DOOR is to what?

SOLUTION

Every letter moves forward by one: D to E, O to P, O to P, R to S.

EPSS

3 Classification (odd one out)

- In a group of four or five items, all but one share a property. Name the property that most of them have; the one that does not is the answer.
- For words, look at the group, the use, the shape or the place. For numbers, look at primes, squares, cubes, even or odd, and multiples.
- Check that the property you chose really separates **one** item from the rest. If two items are left out, choose another property.

Example 3.1 Odd one out: 11, 13, 17, 21

SOLUTION

11, 13 and 17 are prime numbers. $21 = 3 \times 7$ is not.

21

Example 3.2 Odd one out: Triangle, Square, Circle, Pentagon

SOLUTION

Triangle, square and pentagon are made of straight sides. A circle is not.

Circle

Example 3.3 Odd one out: BD, FH, JL, MN

SOLUTION

In BD, FH and JL a letter is skipped between the two letters. In MN no letter is skipped.

MN

REMEMBER

For odd-one-out questions with numbers, test "prime", "perfect square" and "cube" first. They explain most of the questions.

MathSetu