① 4, 6, 12, 24, 44, 74, — ?

6 - 4 = 2   different between consecutive terms:
12 - 6 = 6
24 - 12 = 12
44 - 24 = 20
74 - 44 = 30

Different ~~between~~ Those

6 - 2 = 4   Scord Level shows even itme
12 - 6 = 6
24 - 12 = 8   = 2
~~14 - 24~~   4, 6, 8, 10 next 12
30 - 20 = 10
                    12 + 30 = 42

                    74 + 42 = 116

Ans = 116

②

2) Sequence: 6, 3, 3, 6, 24

    ~~6 to 3 by 2~~
    6 to 3 ÷ 2
    3 to 3 : × 1
    3 to 6 × 2
    6 to 24 × 3
    24 to ■ × 4
    24 × 4 = 96

Ans = 96

3) sequence 15, 15, 30, 10, 40, ?, 48

    15 to 15 : no change (0)
    15 to 30 : + 15
    30 to 10 : - 20
    10 to 40 : + 30
    40 to 48 : find - 8

0, + 15, -20, +30, ÷8

Ans = 8

4. Sequence 4, 5, 12, 39, 160, 9

difference   5-4=1
between consecutive   12-5=7
terms   39-12=27
            160-39=121

first differences = 1, 7, 27, 121

new differences Thepo

7-1=6
27-7=20
121-@=014
    27

Second differences = 6, 20, 44

Ans = 805

$$39 \cdot 160 \quad 39$$
$$12 \quad 39 \quad 39$$
$$\overline{21} \sqrt{21} \quad 29$$
$$\overline{21} \quad \overline{156}$$
$$\overline{144}$$

differences in times
20-6=14
94-20=74

= 14, 74

4×1+1=5
5×2+2=12
12×3+3=39

39×4+4=160
160×5+5=805

160
160
× 60
× 60
× 60
800

5) missing numbers Sequence 9, 10, 18, 57, ?, 1125

① ratios consecutive terms

10/9 = 1.11
18/10 = 1.8
57/18 = 3.11

② differences

10-9 = 1
18-10 = 8
57-18 = 39

differences 1, 8, 39

③ differences between = 2

8-1 = 7
39-8 = 31

nex term = x

x - 57
57×3+6 = 177

6). 11, 10, 18, 68, ?

11 to 10 -1
10 to 18 +8
18 to 68 +50

∴ Diffrence =
-1, +8, +50

multiplication

11-1=10:   from 11 to 10 -1
10×2=+2   11   10 to 18 +8 (10-2)
18×4=-2   from 18 to 68 +58
16×10=-2
            +6·66×10=680-14
        Ans =666

7) 6, 10, 16, 26, 43, 66, ?

10-6=4   Difference Third
16-10=6
26-16=10   6-4=2
42-26=16   10-6=4
66-42=24   16-10=6
                26-16=8
Diffrence=4,6,10,16,24   Difference=2,4,6,8

Adding last difference =
        24+10=34
actual sequence =
        66+34=100

        Ans=100

8)
6, 6, 9, 18, 45, ?

6 to 60 is = same
60 to 9   =6×1.5=9
7 to 18   =9×2=18
18 to 45   =18×2.5=45

The multiplication increases by 0.5 each time (1, 5, 2, 2.5)

next multiplication is 3

So 45×3 = 135

Ans = 135

9) 2, 12, 36, 80, ?, 252, 392

① Difference between consecutive terms

12 - 2 = 10
36 - 12 = 24
80 - 36 = 44
? - 80 =
252 - ? =
392 - 252 = 140

Differences = 10, 24, 44, ?, 140

②② Difference between these 2 types

24 - 10 = 14
44 - 24 = 20
? - 44 =
140 - ? =

44 + 6 = 50

80 + 50 = 130

Ans = 130

  252
  132
 ‾‾‾‾
  120

10) 2, 6, 33, 49, 174, 210 ?

Pattern difference
―――――――――――
6 - 2 = 4
33 - 6 = 27
49 - 33 = 16
174 - 49 = 125
210 - 174 = 36

Differences = 4, 27, 16, 125, 36

observing patterns:
―――――――――――
2 × 3 = 6
6 × 5 + 3 = 33
33 × 2 + 7 = 49
49 × 4 - 2 = 174
174 × 1 + 36 = 210

Planffed Patterns

$$210 \times 2 + 34$$

$$210 \times 2 = 420$$

$$420 + 34 = 454$$

$$= 210 + 64 = 274$$

Ans = 275