

2022, Q7 (b)

Find the missing number in the series.

$$\begin{array}{cccccc} \text{i)} & 4 & , & 16 & , & 36 & , & 64 & , & \text{---} & , & 144 \\ & \downarrow & & \downarrow & & \downarrow & & \downarrow & & \uparrow & & \downarrow \\ & 2^2 & & 4^2 & & 6^2 & & 8^2 & & 10^2 & & 12^2 \end{array}$$

In the given series, numbers are square of even numbers. So, the missing number is 100, hence, the series would be 4, 16, 36, 64, 100, 144.

ii) 30, 29, 27, —, 20, 15

$$\begin{array}{cccccc} 30 & , & 29 & , & 27 & , & 24 & , & 20 & , & 15 \\ \underbrace{\hspace{1.5cm}}_{-1} & \underbrace{\hspace{1.5cm}}_{-2} & \underbrace{\hspace{1.5cm}}_{-3} & \underbrace{\hspace{1.5cm}}_{-4} & \underbrace{\hspace{1.5cm}}_{-5} \end{array}$$

In the given series, each number is obtained by subtracting the consecutive natural number. So, the missing number is 24. Hence, the series would be 30, 29, 27, 24, 20, 15.

iii) 1, 7, 15, 25, —, 51

$$\begin{array}{cccccc} 1 & , & 7 & , & 15 & , & 25 & , & 37 & , & 51 \\ \underbrace{\hspace{1.5cm}}_{+6} & \underbrace{\hspace{1.5cm}}_{+8} & \underbrace{\hspace{1.5cm}}_{+10} & \underbrace{\hspace{1.5cm}}_{+12} & \underbrace{\hspace{1.5cm}}_{+14} \end{array}$$

In the given series, even numbers are added to the each number starting from even number 6. So the missing number is 37. Hence, the series would be 1, 7, 15, 25, 37, 51.



iv) 0, 2, 6, 12, 20, 30, \_\_\_\_\_.

$$0, 2, 6, 12, 20, 30, \underline{42}.$$

+2   +4   +6   +8   +10   +12

In the given series, each number is obtained by adding consecutive even number. So, the missing number is 42. Hence, the series would be 0, 2, 6, 12, 20, 30, 42.

v) 48, 24, 72, 36, 108, \_\_\_\_\_ ?

48, 24, 72, 36, 108, \_\_\_\_\_.

$$\frac{48}{24} = 2$$

$$\frac{72}{36} = 2$$

$$\frac{108}{x} = 2$$

$$x = 54$$

In this series, Dividing the first term with second gives 2. Dividing third term with fourth also gives 2. Same rule will be applied for the fifth and sixth term. So, the missing number is 54. Hence, the series would be 48, 24, 72, 36, 108, 54.



2023: Q6 (b)

Find the missing number in the series below.

a) 1, 8, 4, 27, 9, — ?

$$\begin{array}{cccccc} 1, & 8, & 4, & 27, & 9, & \underline{64} \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \uparrow \\ 1 & 2^3 & 2^2 & 3^3 & 3^2 & 4^3 \end{array}$$

In the given series, first number is 1 and others number are obtained by taking cube and then taking square of the same number in ascending order of natural numbers. So, the missing number is 64. Hence, the series would be 1, 8, 4, 27, 9, 64.

b) 3, 6, 8, 16, 18, — ?

$$\begin{array}{cccccc} 3, & 6, & 8, & 16, & 18, & \underline{36} \\ \underbrace{\phantom{3 \rightarrow 6}}_{\times 2} & \underbrace{\phantom{6 \rightarrow 8}}_{-2} & \underbrace{\phantom{8 \rightarrow 16}}_{\times 2} & \underbrace{\phantom{16 \rightarrow 18}}_{-2} & \underbrace{\phantom{18 \rightarrow 36}}_{\times 2} & \end{array}$$

In the given series, the consecutive numbers are obtain by multiplication with 2. and other number ~~subtraction of 2~~ is obtain by subtracting with 2. So, the missing number is 36. Hence, the series would be 3, 6, 8, 16, 18, 36.



c) 2, 8, 512, — ?

2, 8, 512, 39,845,888

$$2^3 = 8$$

$$8^3 = 512$$

$$512^3 = \cancel{39,845,888} \quad 134,217,728$$

In the given series, each number is cube of the first number. So the next number is 39,845,888. Hence, the series would be 2, 8, 512, ~~39,845,888~~, 134,217,728.

d) 81, 9, 64, 8, —, 12

81, 9, 64, 8, 144, 12.

$$\sqrt{81} = 9$$

$$\sqrt{64} = 8$$

$$\sqrt{144} = 12$$

In the given series, each second number is obtain. by taking root of the first number. So the ~~square~~ square root of 12 is 144. Hence, the missing number is 144.

Good attempt!!!

e) 6, 11, 21, 36, 56, — ?

6, 11, 21, 36, 56, 81  
+5 +10 +15 +20 +25

In the given series, each next number is obtained by adding the consecutive factor of 5. So, the missing number is 81. Hence, the series would be 6, 11, 21, 36, 56, 81.