

Date: 27/7/2024

## General Ability

### NOA Post Papers

Q: The sum of three consecutive odd numbers is 273. What are the three odd numbers?

### Solution:

Let's call the three consecutive odd numbers  $x$ ,  $x+2$ , and  $x+4$ .

The sum of these three numbers is given as 273. Therefore, we can set up the equation.

$$x + (x+2) + (x+4) = 273$$

$$x + x + 2 + x + 4 = 273$$

$$3x + 6 = 273$$

$$3x = 273 - 6$$

$$3x = 267$$

Dividing by '3' on both sides

$$\frac{3x}{3} = \frac{267}{3}$$

$$x = 89$$

(2)

Date: 27/7/2024

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Dividing by '3' on both sides

$$\frac{3x}{3} = \frac{267}{3}$$

$$x = 89$$

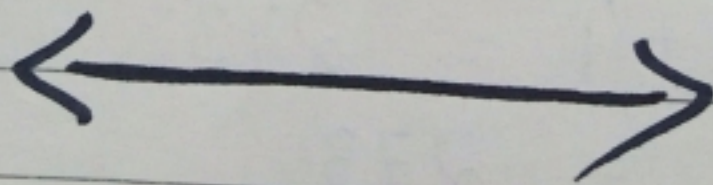
So, the three consecutive odd numbers are:

$$x = 89$$

$$x + 2 = 91$$

$$x + 4 = 93$$

Therefore, the three odd numbers are 89, 91 and 93.



Time Slot = 10 minutes

3

Date: 27/7/2024

Q: (b) Find the missing numbers in the given series.

(i) 4, 16, 36, 64, \_\_\_\_\_, 144.

Solution :

Notice that these numbers can be represented as squares of certain numbers :

$$2^2 = 4$$

$$4^2 = 16$$

$$6^2 = 36$$

$$8^2 = 64$$

$$12^2 = 144$$

The pattern suggest that these are squares of even numbers :  
2, 4, 6, 8, 10, 12.

The missing number should be the square of 10:

$$10^2 = 100$$

Therefore, the missing number in the series is 100.

Q: Find the missing numbers in the given series

(ii) 30, 29, 27, 24, 20, 15

Solution:

To find the missing numbers in the series 30, 29, 27,     , 20, 15 let's look for a pattern in the difference between two numbers.

1.  $30 - 29 = 1$

2.  $29 - 27 = 2$

3.  $27 - ?$

4.  $? - 20$

5.  $20 - 15 = 5$

The differences are 1, 2, ?, 5. It seems like the differences might be increasing by 1 each time.

- 1
- 2
- 3
- 4
- 5

Following this pattern, the missing difference should be 3.

So,  $27 - 3 = \boxed{24}$

(5)

Date: 27/7/2024

Q: Find the missing numbers in the given series,

(iii) 1, 7, 15, 25, —, 51

Solution:

To find the missing number in the series 1, 7, 15, 25, —, 51.

Let's look for a pattern in the difference between the numbers.

$$7 - 1 = 6$$

$$15 - 7 = 8$$

$$25 - 15 = 10$$

$$? - 25 = ?$$

$$51 - ?$$

The differences are 6, 8, 10

It looks like the differences are increasing by 2 each time.

6

8 (6+2)

10 (8+2)

12 (10+2)

So, the next difference should be 12.

$$= 25 + 12$$

$$= 37$$

Therefore, the missing number in the series is 37.

Date: 27/7/2024.

Q: Find the missing number in the given series

(iv) 0, 2, 6, 12, 20, 30, —

Solution :

To find the missing number in the series 0, 2, 6, 12, 20, 30, ?  
Let's examine the pattern in the sequence.

We can look at the difference between consecutive terms:

1.  $2 - 0 = 2$
2.  $6 - 2 = 4$
3.  $12 - 6 = 6$
4.  $20 - 12 = 8$
5.  $30 - 20 = 10$

The differences are 2, 4, 6, 8, 10

It appears that differences are increasing by 2 each time

So, the next difference should be  $10 + 2 = 12$

Using this difference

$$30 + 12 = 42$$

Therefore, the missing number in the series is 42

(7)

Date: 27-07-2024.

Q: Find the missing numbers in the given series

(v) 48, 24, 72, 35, 108, \_\_\_\_\_?

Solution:

To find the missing number in the series 48, 24, 72, 35, 108, \_\_\_\_\_?

Let's analyze the pattern by splitting the sequence into two interleaved sequences.

1. The first sequence (even positions) : 48, 72, 108

2. The second sequence (odd positions) : 24, 35, ?

First sequence 48, 72, 108.

The pattern here is

$$48 \times 1.5 = 72$$

$$72 \times 1.5 = 108.$$

Second sequence 24, 35, ?

The pattern here appears to involve adding 11.

$$35 - 24 = 11$$

Assuming the pattern continues by adding 11.

$$35 + 11 = 46$$

Therefore, the missing number in the series is 46.

(8)

Date: 27.07.2024.

Q: (c) Find out the correct word from the given jumbled spellings.

(i) THRSI

Solution :

THRSI  $\Rightarrow$  HISTOR.

(ii) GINDREA

Solution :

GINDREA  $\Rightarrow$  DANGER.

(iii) SCHAMOT

Solution :

SCHAMOT  $\Rightarrow$  CATHARSIS

(iv) ONLNDO

Solution :

ONLNDO  $\Rightarrow$  LONDON.

(v) HIODALY

Solution :

HIODALY  $\Rightarrow$  HYDROLY.

Time slot = 6 minutes



(9)

Date: 27/7/2024.

Q: (d) Sara's mother is 6 times older than Sara, whereas her brother Ali is twice as old as Sara. In three years' time the sum of their ages will be 72. How old are Sara, Ali and their mother now?

Solution: Let's solve the problem step by step.

1. Define the variables

Let Sara's current age be  $S$

Sara's mother is 6 times older than Sara, so her current age is  $6S$

Ali is twice as old as Sara, so his current age is  $2S$ .

2. Write the equation for their ages in three years.

Sara's age in 3 years will be  $S+3$

Her mother's age in 3 years will be  $6S+3$

Ali's age in 3 years will be  $2S+3$

(10)

Date: 27/7/2024

3. Set up the equation for the sum of their ages in three years.

$$(S+3) + (6S+3) + (2S+3) = 72$$

4. Simplify the equation:

$$S + 6S + 2S + 3 + 3 + 3 = 72$$

5. Solve for S:

$$9S + 9 = 72$$

$$9S = 63$$

$$S = \frac{63}{9}$$

$$\boxed{S = 7}$$

6. Determine their ages:

Sara's current age is  $\boxed{7}$

Her mother's current age is  $6 \times 7 = \boxed{42}$

Ali's current age is  $2 \times 7 = \boxed{14}$

Time slot =  $\boxed{20 \text{ minutes}}$

**THE END**