

**Problem 2:** 61, 59, 53, 47, ?

**Solution :**

Looking at all terms we can figure out that all are prime number.

**Pattern:** After current number previous consecutive 1<sup>st</sup> prime number is taken as next number in series

Prime number(n)	61	59	53	47	?
n-1 Prime no	59	53	47	43	

To find number in place of ? we need to find 1<sup>st</sup> previous consecutive prime number before 47.

Previous prime number of 47 : 43

**Answer is 43**

The average of 4 consecutive even numbers is 27. Find the largest of these numbers.

**Solution :**

As you can see numbers are consecutive even.

Let us assume 1<sup>st</sup> smallest number x so next numbers would be x+2 , x+4 and x+6

Average of 4 number is 27

So total of number would be  $4 * 27 = 108$

$$x + (x + 2) + (x + 4) + (x + 6) = 108$$

$$4x + 12 = 108$$

$$4x = 96$$

$$x = 24$$

So smallest number is 24

$$\text{Largest number} = x + 6 = 24 + 6 = 30$$

A does a work in 10 days and B does work in 15 days. In how many days they together can complete work?

**Solution :**

Let us assume Work -> Eating mangoes.

A takes 10 days to eat certain number of mangoes.

B takes 15 days to eat certain number of mangoes.

Calculate LCM of 10,15 -> LCM of 10 and 15 is 30.

Person	Total Mango	Number of days	1 day speed
A	30	10	$30/10 = 3$ Mango
B	30	15	$30/15 = 2$ Mango

So A eats 3 Mango in 1 day and B eats 2 Mango in 1 day.

In order to do complete work [30 Mangos]:

1 day Speed of A + B =  $3 + 2 = 5$

Time required to complete work =  $30/5 = 6$  Days

**Answer is 6 Days**

A does a work in 10 hours. B does same work in 30 hours. C completes same work in 60 hours. How much time required to complete work if A, B and C worked together?

**Solution :**

Let us assume Work -> Eating mangoes.

A takes 10 hours to eat certain number of mangoes.

B takes 30 hours to eat certain number of mangoes.

C takes 60 hours to eat certain number of mangoes.

Calculate LCM of 10, 30, 60 -> LCM of 10, 30,60 is 60.

Person	Total Mango	Number of hours	1 Hour speed
A	60	10	$60/10 = 6$ Mango
B	60	30	$60/30 = 2$ Mango
C	60	60	$60/60 = 1$ Mango
A+B+C	60	60/9	$6+2+1 = 9$ Mango

A+B+C will require  $60/9$  hours to complete work.

$$60/9 = 6\frac{6}{9}$$

The man can do a work in 5 days. With help of his son he can do that work in 3 days.  
How much time his son will take alone to complete work.

**Solution :**

Calculate LCM of 5, 3 -> LCM of 5, 3 is 15.

Person	Total Mango	Number of days	1 day speed
Man	15	5	$15/5 = 3$ Mango
Man+Son	15	3	$15/3 = 5$ Mango
Son	15	?	$5-3 = 2$ Mango

The speed of Man alone = 3 Mango in 1 day

The speed of Man +Son = 5 Mango in 1 day.

Speed of Son alone = (Speed of Man +Son) – (Speed of Man alone)

$$= 5 - 3 = 2 \text{ Mango}$$

Number of days son alone will require = Total mango / 1 Day speed

$$= 15/2 = 7.5 \text{ days}$$

A & B together completes a work in 6 days. B alone can do same work in 24 days. How much A will take alone to complete work.

**Solution :**

Calculate LCM of 6, 24 → LCM of 6, 24 is 24.

Person	Total Mango	Number of days	1 day speed
A+B	24	6	$24/6 = 4$ Mango
B	24	24	$24/24 = 1$ Mango
A	24	?	$4-1 = 3$ Mango

The speed of A + B = 5 Mango in 1 day.

The speed of B alone = 1 Mango in 1 day

Speed of A alone = (Speed of A + B) – (Speed of B alone)

$$= 4 - 1 = 3 \text{ Mango}$$

Number of days A alone will require = Total mango / 1 Day speed

$$= 24/3 = 8 \text{ days}$$

A completes work in 9 days and B completes same work in 12 days. If they work on alternate days, how much time they will require to finish work.

Looking at this we can understand that in 2 days 7 Mango eaten.

As we need to complete 36 Mango.

36 is not completely divisible by 7 so we need to find number less than and nearest to 36 and should be completely divisible by 7.

To complete 35:

2 days - 7 Mango

?days - 35 Mango

Cross multiply to get answer



Looking at this we can understand that in 2 days 7 Mango eaten.

As we need to complete 36 Mango.

36 is not completely divisible by 7 so we need to find number less than and nearest to 36 and should be completely divisible by 7.

To complete 35:

2 days - 7 Mango

?days - 35 Mango

Cross multiply to get answer

**Solution :**

Calculate LCM of 9, 12 -> LCM of 9, 12 is 36.

Person	Total Mango	Number of days	1 day speed
A	36	9	$36/9 = 4$ Mango
B	36	12	$36/12 = 3$ Mango

A speed is 4 Mango per day

B speed is 3 Mango per day.

As A and B are working on Alternate days:

Total Mango to finish : 36

Day	Mango eaten	Pending Mango(36-eaten)
1 [A will work]	4	32
2 [B will work]	$4+3 = 7$	29
3 [A will work]	$7+4 = 11$	25
4 [B will work]	$11+3 = 14$	22

To complete 35:

2 days - 7 Mango

?days - 35 Mango

Cross multiply to get answer

$$2 * 35 = 7 * ?$$

$$? = 70/7 = 10$$

35 Mango completed in 10 days and 1 still pending [as  $36 - 35 = 1$ ]

On 11<sup>th</sup> day 1 mango pending and A will be working.

So A will require  $\frac{1}{4}$  time eat same [as in 1 day he eats 4].

$$\text{Total days required} = 10 + \frac{1}{4}$$

**Answer is  $10\frac{1}{4}$  Days**

A completes work in 20 days and B completes same work in 30 days. If they work on alternate days, how much time they will require to finish work.

**Solution :**

Calculate LCM of 20,30 -> LCM of 20, 30 is 60.

Person	Total Mango	Number of days	1 day speed
A	60	20	$60/20 = 3$ Mango
B	60	30	$60/30 = 2$ Mango

A speed is 3 Mango per day

B speed is 2 Mango per day.

As A and B are working on Alternate days:

Total Mango to finish 60.

Day	Mango eaten	Pending Mango(36-eaten)
1 [A will work]	3	57
2 [B will work]	$3+2 = 5$	55

Looking at this we can understand that in 2 days 5 Mango eaten.

As we need to complete 60 Mango.

To complete 60:

2 days - 5 Mango

? days - 60 Mango

Cross multiply to get answer.

$$2 * 60 = 5 * ?$$

$$? = 120/5 = 24 \text{ days will be required.}$$

**Answer is 24 days**

A completes work in 15 days and B completes same work in 10 days. They started working together but after 2 days work, B left the job and A continued alone to complete work. In how much day pending work will be completed?

**Solution :**

Calculate LCM of 15, 10 -> LCM of 15, 10 is 30.

Person	Total Mango	Number of days	1 day speed
A	30	15	$30/15 = 2$ Mango
B	30	10	$30/10 = 3$ Mango

A speed is 2 Mango per day

B speed is 3 Mango per day.

A+B speed for 1 day is 5 Mango.

A +B worked together for 2 days.

Number of mangoes eaten in this time =  $2 * 5 = 10$

Pending work [mango] = Total Mango – Completed work [mango]

$$\text{Pending} = 30 - 10 = 20$$

A as alone, To complete pending work : 20 mango

1 day - 2 Mango

? days - 20 Mango



Cross multiply to get answer.

$$1 * 20 = 2 * ?$$

$$? = 20/2 = 10 \text{ days}$$

To complete pending work by A alone 10 days will be required.

**Answer is 10 days**

19. (a) Let 1 man's 1 day's work = x and  
1 boy's 1 day's work = y.

$$\text{Then, } 6x + 8y = \frac{1}{10} \text{ and } 26x + 48y = \frac{1}{2}.$$

Solving these two equations, we get :

$$x = \frac{1}{100} \text{ and } y = \frac{1}{200}.$$

$\therefore$  (15 men + 20 boys)'s 1 day's work

$$= \left( \frac{15}{100} + \frac{20}{200} \right) = \frac{1}{4}.$$

$\therefore$  15 men and 20 boys can do the work in 4 days.

20. (a) 1 man's 1 day's work =  $\frac{1}{108}$ .

$$12 \text{ men's } 6 \text{ day's work} = \left( \frac{1}{9} \times 6 \right) = \frac{2}{3}.$$

$$\text{Remaining work} = \left( 1 - \frac{2}{3} \right) = \frac{1}{3}.$$

$$18 \text{ men's } 1 \text{ day's work} = \left( \frac{1}{108} \times 18 \right) = \frac{1}{6}.$$

$\frac{1}{6}$  work is done by them in 1 day.

$$\therefore \frac{1}{3} \text{ work is done by them in } 6 \times \frac{1}{3} = 2 \text{ days}$$

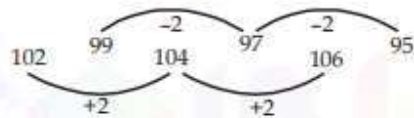
21. (a) The series is as follows:  $\times 3 - 3$

Hence,  $? = 96 \times 3 - 3 = 285$

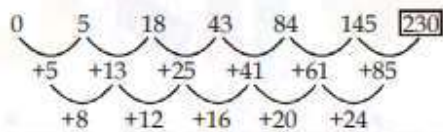
22. (c) The series is as follows:  $\div 5$

Hence,  $? = 2800 \div 5 = 560$

23. (b) The series is as follows



24. (e)



25. (d) The series is as follows

$\times 1 + (7 \times 1), \times 2 + (7 \times 2), \times 3 + (7 \times 3), \times 4 + (7 \times 4),$   
 $\times 5 + (7 \times 5), \times 6 + (7 \times 6) \dots$

Hence,  $? = 3475 \times 6 + (7 \times 6)$   
 $= 20892$

26. (c) The series is as follows

$\times 3, \times 8, \times 15, \times 24, \times 35, \times 48$

Hence,  $? = 302400 \times 48$   
 $= 14515200$

27. (b) The series is as follows

$\times 1 + 2, \times 2 + 4, \times 3 + 6, \times 4 + 8, \times 5 + 10, \times 6 + 12 \dots$

Hence,  $? = 2090 \times 6 + 12 = 12552$

28. (e) The series is as follows

$\times 2.5, \times 2, \times 1.5, \times 1, \times 0.5, \times 0$

Hence,  $? = 37.5 \times 0 = 0$

29. (c) The series is

$\times 1 + 2, \times 2 + 3, \times 3 + 4, \times 4 + 5, \times 5 + 6$

The wrong number is 18.

It should be  $6 \times 2 + 3 = 15$

30. (e) The series is  $\times 1.5$

The wrong number is 366

It should be  $243 \times 1.5 = 364.5$