**Time & Work**

**Individual / Combined Work:**

1. ‘A’ can do a piece of work in 20 days and ‘B’ can do the same work in 15 days. How long will they take to finish the work, if both work together?

Lcm of 20,15= 60works

A complete works in 1 day = 60/20 = 3 work

B complete works in 1 day =60/15 = 4 work

A & B together complete work in a day = 3+4 =7 works

A & B take to complete the work = 60/7= 8 4/7 days

1. A and B together can complete a particular task in 4 days. If A alone can complete the same task in 12 days. How many days will B take to complete the task if he works alone?

Lcm of 4,12= 12 works

A complete works in 1 day =12/12 = 1 work

A & B together complete works in 1 day =12/4 = 3 work

Now, B can complete work in a day = 3-1 = 2 works

B take to complete the task if he works alone = 12/2= 6 days

1. A girl can do a job in 10 days, Her mother takes 25 days and her sister finishes it in 20 days. How long will they take to complete the job if they all together?

Lcm of 10,25,20 = 100 works

A girl complete works in 1 day =100/10= 10 work

Mother complete works in 1 day =100/25 = 4 work

Now, Sister can complete work in a day = 100/20 = 5 works

All together can take to complete the task if he works alone =100/19

=5 5/19 daysdays

1. A and B together can complete a piece of work in 12 days, B and C can do it in 20 days and C and A can do it in 15 days. A, B and C together can complete it in

Lcm of 12,20,15= 60 works

A & B complete works in 1 day = 60/12 = 5work

B & C complete works in 1 day =60/20 = 3 work

C & A can complete work in a day = 60/15= 4 works

A+B+C together can complete in 1 day = (5+3+4) /2 = 6 works

Total time taken to complete work by A B C = 60/6 = 10days

**Alternative days**

1. A, B and C can do a piece of work in 11 days, 20 days and 55 days respectively, working alone. How soon can the work be done if A is assisted by B and C on alternate days?

Lcm of 11,20,55= 220 works

A complete works in 1 day =220/11= 20 work

B complete works in 1 day =220/20 = 11 work

C can complete work in a day = 220/55= 4 works

Day 1 A &B together can take to complete the task if he works alone =20+11 = 31

Day 2 A & C together can take to complete the task if he works alone =20+4 = 24

Now End of two days = 55 works

Total TIme= 2\*220/55 = 8days

**Remaining Work:**

1. P can finish a work in 25 days and Q can do the same work in 20 days. Q worked for 8 days and left the job. In how many days, P alone can finish the remaining work?

Lcm of 25,20= 100 works

P complete works in 1 day =100/25 = 4 work

Q complete works in 1 day =100/20 = 5 work

Now Q completed work in 8 days=8\*5= 40 works

Remaining work= 100-40= 60 works

P take to complete the task if he works alone = 60/4= 15 days

1. A, B and C can do a piece of work individually in 8, 10 and 15 days, respectively. A and B start working but A quits after working for 2 days. After this, C joins B till the completion of work. In how many days will work be completed?

Lcm of 8,10,15 = 120 works

A can complete work in 1 day = 120/8= 15 works

B can complete work in 1 day = 120 / 10= 12 works

C can complete work in 1 day = 120/15 = 8 works

A and B start working for 2 days= 2\*27 = 54 works completed

Remaining work = 120 - 54 = 66 works

B & C completes remaining work in = 66/20= 3 3/10 days

Total time =2+3 3/10 = 53/10 = 5 3/10days

**Amount Split**

1. X completes a job in 2 days and Y completes it in 3 days and Z takes 4 days to complete it. If they

work together and get Rs. 3900 for the job, then how much amount does Y get?

Lcm of 2,3,4 = 12 works

X complete works in 1 day =12/2 = 6 work

Y complete works in 1 day =12/3 = 4 work

Z can complete work in a day = 12/4 = 3 works

Y get = 4 \* 3900/13

= Rs. 1200

1. If A can do 1/4 of a work in 3 days and B can do 1/6 of the same work in 4 days, how much will A get if both work together and are paid Rs.180 in all?

A can do total work = 4\*3 =12 days

B can do total work = 6\*4 = 24 days

Lcm of 12,24 = 24

A can complete work in 1 day = 24/12 = 2 works

B can complete work in 1 day = 24/24 = 1 work

A get if both work together and are paid = 2\*180/3 =120 rupees

**Efficiency Based:**

1. P is thrice as good a workman as Q and together they finish a piece of work in 24 days. The number of days taken by P alone to finish the work is:

P's 1 days' work) : (Q's 1 days' work) = 3 : 1

Total work= 24\*4= 96

Time taken to complete P alone= 96/3= 32 days

1. Ashokan is thrice as good a workman as Nitin and is therefore able to finish a piece of work in 40 days less than Nitin. Find the time in which they can do it working together.

(As 1 days' work) : (N's 1 days' work) = 3 : 1

Time = 1:3

Time difference = 2x

Given Difference = 40 days

We get = 2x= 40

Then x= 20 days

Ashokan can complete work in = 20 days  **or**  Lcm of 20,60= 60 works

Nithin can complete the work in= 60 days As 1 days' work= 60/20= 3

they can do it working together =20\*60 /20+60 N's 1 days' work = 60/60 = 1

= 20\*60/80 they can do it working together= 60/4

= 15 days = 15 days

1. A can complete a piece of work in 12 days. B is 60% more efficient than A. The number of days, that B will take to complete the same work is

(As 1 days' work) : (N's 1 days' work) = 100:160

Time =160:100

Given Time =12:x

x= 100\*12/160

=7 ½ days

**Chain Rule**

1. 30 men can complete a piece of work in 15 days. In how many days will 25 men complete the same piece of work?

30\*15 = 25\*D

D= 18 DAYS

1. If 12 boys, working 3 hours a day can complete a work in 20 days. How many hours a day must 18 boys work to complete the same work in 10 days?

12\*3\*20=18\*10\*h

H= 12\*3\*20 / 18\*10

= 4 hours

1. If 8 carpenters, working 5 hours a day, can make 350 chairs in 24 days. How many chairs will 12 carpenters make in 36 days, each working 8 hours a day?

8\*5\*24/350 =12\*36\*8/w

w= 12\*36\*8 \*350/ 8\*5\*24

W= 1260

1. 30 men can produce 1500 units in 24 days working 6 hours a day. In how many days, can 18 men produce 1800 units working 8 hours a day?

30\*24\*6/1500= 18\*D\*8/1800

D= 30\*24\*6 \*1800/1500 \*18\*8

D= 36 days

**Group of Male & Female or Boys**

1. 6 women can complete a piece of work in 10 days, whereas 10 children alone take 15 days to complete the same piece of work. How many days will 6 women and 10 children together take to complete the piece of work?

LCM 10,15 = 30 Works

6 women can complete in 1 day= 30/10= 3 works

10 children can complete in 1 day = 30/15 = 2 works

6 woman and 10 children complete in 1 day = 3+2 = 5 works

6 woman and 10 children complete the work in = 30/5= 6 days

1. If 12 men and 16 boys can do a piece of work in 5 days; 13 men and 24 boys can do it in 4 days, then the ratio of the daily work done by a man to that of a boy is :

12m\*5 + 16b\*5=13m\*4+24b\*4

60m-52m= 96b-80b

8m=16b

m=2b

M:B= 2:1

1. If 4 boys and 3 women can do a piece of work in 6 days while 2 boys and 4 women can do the same piece of work in 9 days. How much time will be taken by 7 boys and 9 women to do the same piece of work?

4B\*6+3W\*6=2B\*9+4W\*9

24B-18B =36W-18W

6B=B18W

B=3W

Substitute the value sin given equation & required equation

4\*3w+3w =15w =6 days

7\*3w+9w= 30w =?

15\*6=30 \* D

D=3 days

1. If 8 boys or 12 girls can do a piece of work in 28 days, then in how many days will 4 boys and 8 girls do the same work?

8b=12g

b=3/2 g

4\*3/2g +8g= ?

14g = ?

12G =28

14\*D=12\*28

D= 24 days