

Class8 Chapter Time and work Test paper-1

1. A can do piece of work in 30 days while B alone can do it in 40 days. In how many days can

A and B working together do it? [Ans:  $17\frac{1}{7}$ ]

$$A'S\ 1\ day\ work = \frac{1}{30}$$

$$B'S\ 1\ day\ work = \frac{1}{40}$$

$$(A+B)'S\ 1\ day\ work = \frac{1}{30} + \frac{1}{40} = \frac{4+3}{120} = \frac{7}{120}$$

$$(A+ B) working\ together\ can\ finish\ work\ in\ \frac{120}{7} =$$

$$17\frac{1}{7}\ days$$

2. A and B together can complete a piece of work in 35 days while A alone can complete the same

work in 60 days. How many days B alone

complete the same work . [Ans 84 days\

$$(A+B)'S\ 1\ day\ work = \frac{1}{35}$$

$$(A)'S\ 1\ day\ work = \frac{1}{60}$$

$$(B)'S\ 1\ day\ work = \frac{1}{35} - \frac{1}{60} = \frac{12-7}{420} = \frac{5}{420} = \frac{1}{84}$$

So, B alone complete the same work in 84 days

3. A can do a piece of work in 7days of 9 hours each and B can do it in 6 days of 7 hours each.

How long will they take to do it, working together

$8\frac{2}{5}$  hours a day ? [Ans 3 days]

Ans: A can complete the work in  $(7 \times 9)$  hrs = 63

hrs. B can complete the work in  $(6 \times 7)$  hrs = 42

hrs.

$$As\ 1\ hours\ work = \frac{1}{63}\ and$$

$$B's\ 1\ hours\ work = \frac{1}{42}$$

$$(A + B)s\ 1\ hours\ work = \frac{1}{63} + \frac{1}{42} = \frac{2 + 3}{126} = \frac{5}{126}$$

$$Both\ will\ finish\ the\ work\ in\ \frac{126}{5}\ hrs$$

$$They\ working\ together\  $8\frac{2}{5} = \frac{42}{5}$  hrs each days$$

$$Number\ of\ days = \frac{126}{5} \times \frac{42}{5} = \frac{126}{5} \times \frac{5}{42} = 3\ days.$$

4. A can do a piece of work in 15 days and B alone can do it in 10 days. B works at it for 5 days and then leaves. In how many days A alone can

finish the remaining work . { ans:  $7\frac{1}{2}$  days}

$$Ans: B's\ 5\ day's\ work = 5 \times \frac{1}{10} = \frac{1}{2}$$

$$Remaining\ work = 1 - \frac{1}{2} = \frac{1}{2}$$

A can finish work the remaining work

$$= 15 \times \frac{1}{2} = 7\frac{1}{2}\ days$$

5. A can do  $\frac{1}{3}$  of the work in 5 days and B can do  $\frac{2}{5}$  of the work in 10 days. In how many days both

A and B together can do the work [Ans.  $9\frac{3}{8}$ ]

Solution: A can do  $\frac{1}{3}$  of the work in 5 days

$$A\ can\ do\ 1\ the\ work\ in\ 5 \div \frac{1}{3} = 15\ days$$

$$B's\ 1\ day\ work = \frac{1}{15}$$

A can do  $\frac{2}{5}$  of the work in 10 days

$$B\ can\ do\ 1\ the\ work\ in\ 10 \div \frac{2}{5} = 25\ days$$

$$B's\ 1\ day\ work = \frac{1}{25}$$

$$(A+B)'s\ 1\ day\ work = \frac{1}{15} + \frac{1}{25} = \frac{5+3}{75} = \frac{8}{75}$$

So, both working together finish work in  $\frac{75}{8} =$

$$9 \frac{3}{8} \text{ days}$$

6. A can do a piece of work in 80 days. He works at it for 10 days and then B alone finished the remaining work in 42 days. In how many days they together could complete the work {ans 30 days}

Ans: Work done by A in 10 days =  $\frac{1}{80} \times 10 = \frac{1}{8}$

$$\text{Remaining work} = (1 - \frac{1}{8}) = \frac{7}{8}$$

Now,  $\frac{7}{8}$  work is done by B in 42 days

$$\text{Whole(1)work will be done by B in } 42 \times \frac{8}{7}$$

$$= 48 \text{ days.}$$

$$\text{A's 1 days work} = \frac{1}{80} \text{ and B's 1 days work} = \frac{1}{48}$$

$$(A + B)'s 1 days work = \frac{1}{80} + \frac{1}{48} = \frac{8}{240} = \frac{1}{30}$$

so, both will finish the work in 30 days.

7. A and B can together finish a work in 30 days. They worked at it for 20 days and then B left. The remaining work was done by A alone in 20 more days. In how many days A alone can finish the work. {Ans : 60 days}

Ans: (A + B)'s 1 days work =  $\frac{1}{30} \times 20 = \frac{2}{3}$

$$\text{Remaining work} = 1 - \frac{2}{3} = \frac{1}{3}$$

The remaining work was done by A alone in 20 days

So,  $\frac{1}{3}$  work was done by A alone in 20 days

Whole work was done by A alone in  $20 \div \frac{1}{3} = 60$

days

8. A and B can do a piece of work in 45 days and 40 days respectively. They began to go the work together but A leaves after some days and then B completed the remaining work in 23 days. Find the number of days after which A left the work [ans: 9]

$$(A+B)'s 1 day's work = \frac{1}{45} + \frac{1}{40} = \frac{17}{360}$$

$$\text{B's 1 day work} = \frac{1}{40}$$

$$\text{Work done by B in 23 days} = \frac{1}{40} \times 23 = \frac{23}{40}$$

$$\text{Remaining work} = 1 - \frac{23}{40} = \frac{17}{40}$$

Now,  $\frac{17}{360}$  work was done by (A+B) in 1 day.

Whole work done by (A+B) in  $\frac{360}{17}$  days

$$\text{Then, } \frac{17}{40} \text{ work was done by (A+B) in } \frac{360}{17} \times \frac{17}{40} =$$

9 days

Therefore, A left after 9 days.

9. A does half as much work as B in three fourth of the time. If together they take 18 days to complete the work, how much time shall B take to do it? [ans 30 days]

Let's B takes x days to finish 1 work, then

$$\text{So, B's 1 day work} = 1/x$$

then, A will take  $\frac{3x}{4}$  days to finish  $\frac{1}{2}$  work.

$$\text{So, A's 1 day work} = \frac{1}{\frac{3x}{4} \div \frac{3x}{4}} = \frac{2}{3x}$$

$$\text{Both A and B 1 day work} = \frac{1}{18}$$

Both (A and B)'s 1 day work =  $\frac{1}{x} + \frac{2}{3x} = \frac{5}{3x} = \frac{1}{18} \Rightarrow$

$x = \frac{5 \times 18}{3} = 30 \text{ days}$

10. A can do a certain job in 12 days. B is 60% more efficient than A. How many days B alone finish the same work [Ans 7 1/2]

Ans: A's 1 day work =  $\frac{1}{12}$

B's 1 day work =  $\frac{1}{12} + 60\% \text{ of } \frac{1}{12} = \frac{1}{12} + \frac{60}{100} \times \frac{1}{12}$   
 $= \frac{1}{12} + \frac{1}{20} = \frac{5+3}{60} = \frac{8}{60} = \frac{2}{15}$

B alone finish the same work in  $\frac{15}{2} = 7\frac{1}{2} \text{ days}$

11. A can do a certain job in 25 days which B alone can do in 20 days. A started the work and was joined by B after 10 days. How many days taken in completing the work [ans 16 2/3]

Ans: A's 10 days work =  $\frac{1}{25} \times 10 = \frac{2}{5}$

Remaining work =  $1 - \frac{2}{5} = \frac{3}{5}$

(A+B)'s 1 days work =  $\frac{1}{25} + \frac{1}{20} = \frac{4+5}{100} = \frac{9}{100}$

Whole work done by (A + B)'s in  $\frac{100}{9}$  days

$\frac{3}{5}$  work done by (A + B)'s in  $\frac{100}{9} \times \frac{3}{5} = \frac{20}{3}$   
 $= 6\frac{2}{3} \text{ days}$

Total time =  $10 + 6\frac{2}{3} = 16\frac{2}{3} \text{ days}$

12. A is twice as good at work as B and together they finish a piece of work in 14 days . In how many days A alone to finish the work. [Ans: 21 days]

Ans: Let B's 1 day work =  $\frac{1}{x}$

Then, A's 1 day work =  $\frac{2}{x}$

(A+B)'s 1 days work =  $\frac{1}{x} + \frac{2}{x} = \frac{3}{x}$

A/q (A+B)'s 1 days work =  $\frac{1}{14} = \frac{3}{x} \Rightarrow x = 42$

So, A alone finish work in  $x/2$  days =  $42/2 = 21$  days

13. A is thrice as good a work man as B and takes 10 days less to do a piece of work than B takes. How many days B alone can do the whole work : [ans 15 days]

Ans: : Let B complete work in x days

Then A completes same work in x - 10 days

A's 1 day work =  $\frac{1}{x-10}$

B's 1 day work =  $\frac{1}{x}$

A/Q  $3 \times \frac{1}{x} = \frac{1}{x-10} \Rightarrow 3x - 30 = x \Rightarrow 2x = 30$

$x = 15 \text{ says}$

Hence , B complete work in 15 says

14. A can do a piece work in 14 days which B can do in 21 days. They begin together but 3 days before the completion of the work, A leaves off. Find the total number of days taken to finish work.[ ans 10 1/5]

B' 3 days work =  $\frac{1}{21} \times 3 = \frac{1}{7}$

Remaining work =  $1 - \frac{1}{7} = \frac{6}{7}$

(A+ B)'s 1 days work =  $1 \left( \frac{1}{14} + \frac{1}{21} \right) = \left( \frac{3+2}{42} \right) = \frac{5}{42}$

(A + B) completes whole work in  $\frac{42}{5} \text{ days}$

Then,  $(A + B)$  completes  $\frac{6}{7}$  work in  $\frac{42}{5} \times \frac{6}{7} =$

$\frac{36}{5}$  days

Total time taken =  $3 + \frac{36}{5}$  days =  $\frac{51}{5}$  days =

$10\frac{1}{5}$  days

15. If Ramesh, suresh and harish can do a piece of work in 15 days, 10 days and 6 days resp. How long will they take to do it, if all the three work it together? [ans 3 days]

(Ramesh, suresh and harish)'s 1 days work =

$$\frac{1}{15} + \frac{1}{10} + \frac{1}{6} = \frac{2+3+5}{30} = \frac{1}{3}$$

All the three work it together in 3 days

16. A and B can do a piece of working 72 days: B and C and do it in 120 days ; A and C can do it in 90 days. In what days can A alone do it ? [ ans 120 days]

$$2(A+B+C)'s\ 1\ day\ work = \frac{1}{72} + \frac{1}{120} + \frac{1}{90} = \frac{5+3+4}{360} =$$

$$\frac{12}{360} = \frac{1}{30}$$

$$(A+B+C)'s\ 1\ day\ work = \frac{1}{30} \times \frac{1}{2} = \frac{1}{60}$$

$$(A)'s\ 1\ day\ work = \frac{1}{60} - \frac{1}{120} = \frac{2-1}{120} = \frac{1}{120}$$

Hence A completes the work in 120 days

17. A and B and C together can finish a piece of work in 4 days, A alone can do it in 12 days and B alone can do in 18 days, In how many days C alone can do it : [ ans 9 days]

$$C's\ 1\ day\ work = \frac{1}{4} - \left(\frac{1}{12} + \frac{1}{18}\right) = \frac{9 - (3+2)}{36} = \frac{4}{36} = \frac{1}{9}$$

So, C alone can do it in 9 days

18. A,B, and C can do a piece of work in 10 days.

A and B can do it in 12 days, A and C in 20 days.

How many days would it take each to do the work alone?

Solution :  $(A+B+C)$ 's 1 days work =  $1/10$

$(A+B)$ 's 1 days work =  $1/12$

$(A+C)$ 's 1 days work =  $1/20$

C's 1 days work =  $1/10 - 1/12 = 1/60$

B's 1 days work =  $1/10 - 1/20 = 1/20$

A 1 day work will be =  $\frac{1}{10} - \frac{1}{60} - \frac{1}{20} = \frac{2}{60} = \frac{1}{30}$

A can complete in 30 ,B can complete 20 days and C can complete 60 days

19. A, B and C are employed to do a piece of work for Rs.529. A and B together are supposed to do  $\frac{19}{23}$  of the work and Band C together  $\frac{8}{23}$  of the work. What amount should A be paid?

$$\text{Ans: Work done by A} = \left(1 - \frac{8}{23}\right) \frac{15}{23}$$

$$A : (B+C) = \left(\frac{15}{23} : \frac{8}{23}\right) = 15 : 8$$

$$\text{So, A's share} = \text{Rs.} \left(\frac{15}{23} \times 529\right) = \text{Rs.} 345.$$

20. Pipe A can fill a cistern in 6 hours and pipe B can fill it in 8 hours. Both the pipes are opened and after two hours, pipe A is closed. How much time will B take to fill the remaining part of the tank?

$$\text{Solution Work done by } (A + B) \text{ in 1 hour} = \left(\frac{1}{6} + \frac{1}{8}\right) = \frac{7}{24}$$

$$\text{Work done by both in 2 hours} = \left(\frac{7}{24} \times 2\right) = \frac{7}{12}$$

$$\text{Remaining part} = \left(1 - \frac{7}{12}\right) = \frac{5}{12}$$

Now B fill full tank in 8 hrs

$$\text{So, B fill part } \frac{5}{12} \text{ part in } 8 \times \frac{5}{12} = \frac{10}{3} \text{ hrs} =$$

3 hrs 20 min