1. C

**Explanation:**
Total days Mohan worked = 3 + 3 = 6
6/15 = 2/5
So 3/5 = 3/x
x = 5

2. C

**Explanation:**
Arun, Bipasha and Rahul’s 1 day work = 1/10 + 1/50 = 6/50 = 3/25
Arun’s 1 day work = Bipasha + Rahul’s 1 day work
2*(Arun’s 1 day work) = 3/25
Arun’s 1 day work = 3/50
Bipasha’s 1 day work = 1/10 – 3/50 = 2/50 = 1/25

3. C

**Explanation:**
Assume the total work to be 600 units. (LCM of all the numbers)
Then Sandeep’s 1 day work = 8 units.
All three’s 1 day work = 40 units. All work together in the first 2 days.
Work done in the first 2 days = 40 * 2 = 80 units
Sandeep alone works during the last 40 days
Work done in the last 40 days = 40 * 8 = 320 units
Remaining work = 600 – (320 + 80) = 200 units
This work is done by Pradeep and Sandeep in 10 days.
Pradeep and Sandeep together’s 1 day work = 20 units
Sekar’s 1 day work = All three 1 day work – Pradeep and Sandeep together’s 1 day work = 40 units – 20 units = 20 units
Sekar can do the work of 600 units in 30 days.
4. C

**Explanation:**
Dinesh work done = 20*5/4 = 25 days
1/5 work done by Dinesh and gokul in 3 days.
Whole work done = 15 days
Dinesh 1 days work = 1/25
Dinesh and gokul’s 1 day work = 1/15
Gokul’s 1 day work = 1/15 – 1/25 = 2/75
Gokul alone in 75/2 days or 37 ½ days.

5. B

**Explanation:**
Hari + vijay 20 days work = 1/30 *20 = 2/3
Remaining work = 1/3
1/3 work in 20 days so whole work in 60 days.

6. C

**Explanation:**
Let the work be 100 units.
Madhavan’s 1 hour work = 100/5 = 20 units
Manohar and Manjima’s 1 day work = 3/4 × 20 = 15 units.
Mohan and Mani’s 1 day work = 1/5 × 20 = 4 units.
In one day all five of them can do = 20 + 15 + 15 + 4 + 4 = 58 units of work. Hence they can complete the work in 100/58 days.

7. B

**Explanation:**
1/P = 1/10
1/P + 1/Q + 1/R = 1/10 + ¼ = 7/20
In 20 hours, working together, they will complete 7 booklets. Thus, in 40 hours they will complete 14 booklets.

8. B

**Explanation:**
Number of products made by Nakul in 1 hour = 32/6 = 16/3
Number of products made by Ram in 1 hour = 40/5 = 8
Number of products made by both in 1 hour = 16/3 + 8 =
40/3
Time taken by both to make 110 products = 110* 3/40 = 8 ¼ hrs

9. C
Explaination:
Assume there are 360 units of work (LCM of 90, 40 and 12).
Hence, they can do 4,9 and 30 units per day or together 43 units every 3 days.
So In 24 days, 43*8=344 units of work is completed.
In the next 2 days, 13 units are completed and on 27th day, Santhosh takes 1/10 th of a day to finish the rest.
So, gopal and vikash worked for 9 days each and hence put in 36 and 81 units respectively, and the rest of the 243 units is put in by santhosh.
The wages shall also be distributed in the same ratio as: Rs 36, Rs 81 and Rs 243.

10. C
Explaination:
Fraction of work completed by Karthik on day 1 and day 2 = 2*1/30 = 1/15
Fraction of work left after 2 days = 14/15
Fraction of work completed by Both = 1/25 + 1/30 = 11/150
Number of days after day 2 to complete work = 14*150/15*11 = 13 days
So after 2+13 = 15 days works will be completed

11. B
Explaination:
P can complete the work in 25 days and Q can complete the work in 20 days. So both will complete the work in (20*25)/45 = 100/9 days

12. A
Explaination:
Let B take X days to complete the work then in one –sixth of the time i.e. x/6 days. Now A do half work as done by B so A
will take twice the time i.e. $2x/6 = x/3$ to complete the job alone.
So $1/x + 3/x = 1/20$, $x = 80$ days

13. **C**

**Explanation:**
Let total work is $w$ and it is given that one-third of the work is completed after 30 days. Means
$M*D = 30*30 = w/3$, so total work $= 30*30*3$
$2700 = 30*30 + (30+p)*30$, so we get $P = 30$ ($p$ = additional men)

14. **C**

**Explanation:**
Let additional workers be $P$,
$(50*150)/(50*200) = 3/4$ of the work is already completed and now only $1/4$ of the work is to be done. So,
$1/4 = ((50 + P) * 25)/50*200$, solve for $p$, we get $P = 50$

15. **B**

**Explanation:**
$1/15 + 1/12 + 1/c = 1/6$, we got $C = 60$ (it means $C$ will take 60 days to complete the work alone)
so ratio of work done by $P$,$Q$,$R = 4:5:1$
so $c$ share $= (1/10)*1200 = 120$

16. **B**

**Explanation:**
A’s one day work $= 1/32$ so $P$ one day work $= (160/100)*1/32$ $= 1/20$, so $P$ will take 20 days to complete the work.
So Both $A$ and $P$ will take $= (32*20)/52 = 160/13$ days

17. **B**

**Explanation:**
Let $Q$ take $x$ days to complete the work, so $P$ will take $2*3/4$ of $X$ day to complete the work i.e. $3x/2$ days
$1/x + 2/3x = 1/24$, we get $x = 40$ days, so $P$ will take $= 3/2$ of $40 = 60$ days

18. **B**
19. **E**

**Explanation:**
\[(1/12 + 1/15)(T - 3) + 3/12 = 1\]

19. **E**

**Explanation:**
In one hour number of pages type by neha = 40/5 = 8 and similarly for sunil it is 60/6 = 10.
Now to type 180 pages they will take, \((8 + 10)*T = 180, T = 10\) hours

20. **A**

**Explanation:**
\[(1/90 + 1/60 + 1/45)*1/2 = (1/P + 1/Q + 1/R) = 1/40\]
so 40 days

21. **D**

22. **A**

**Explanation:**
Ratio of times taken by A and B = 1:3
Means B will take 3 times which A will do in 1 time

If difference of time is 2 days, B takes 3 days
If difference of time is 10 days, B takes \((3/2)*10 = 15\) days

23. **C**

**Explanation:**
Suppose B takes \(x\) days to do the work.
As per question A will take
\[2\times34\times x = 3x2\text{ days}\]

\[1/(A+B)\text{ s 1 days work} = 1/18\]
\[1/x + 2/3x = 1/18\] or \(x = 30\) days

24. **D**

**Explanation:**
In this type of questions, first we need to calculate 1 hours work, then their collective work as,
A's 1 hour work is 1/8
B's 1 hour work is 1/10

\[(A+B)\text{'}s \text{ 1 hour work} = \frac{1}{8} + \frac{1}{10} = \frac{9}{40}\]

So both will finish the work in 40/9 hours
= 44.9

**25. C**
**Explanation:**
Let 1 man 1 day work = x
1 boy 1 day work = y

then 5x + 2y = 4(x+y)
=> x = 2y
=> x/y = 2/1
=> x: y = 2:1

**26. A**
**Explanation:**
To calculate the answer we need to get 1 man per day work and 1 woman per day work.

Let 1 man 1 day work = x
and 1 woman 1 days work = y.
=> 6x+5y = 1/6
and 3x+4y = 1/10
On solving, we get x = 1/54 and y = 1/90

\[(9 \text{ men} + 15 \text{ women})\text{'}s \text{ 1 days work} = \frac{9}{54} + (15/90) = \frac{1}{3}\]

9 men and 15 women will finish the work in 3 days

**27. C**
28. **D**

**Explanation:**

B’s 5 days work =

\[110 \times 5 = 12\]

Remaining work = \(1 - \frac{12}{15}\) = 7.5 days

29. **C**

**Explanation:**

\((A+B)’s\) 1 day work = 1/4

A’s 1 day work = 1/12

B’s 1 day work =
(14−112)=3−112=16(14−112)=3−112=16

So B alone can complete the work in 6 days

30. **D**

**Explanation:**

Work done by A in 10 days = (1/25) *10 = 2/5
Remaining work = 1 - (2/5) = 3/5
(A+B)s 1 days work = (1/25) + (1/20) = 9/100

9/100 work is done by them in 1 day.
hence 3/5 work will be done by them in (3/5)*(100/9) = 20/3 days.

Total time taken = (10 + 20/3) = 16*(2/3) days

31. **B**

Let 1 day's efficiency of each of the individuals is A, B and C respectively.

As per the given information, we get the efficiency equations as follows

3A = (B + C) ...(**i**)    

A + B + C = 24 ......(**ii**)    

Putting 3A in place of (B + C) in equation (ii), we get

A + 3A = 24

4A = 24

Now, 4A do the whole work in 24 days.
Therefore, A alone will do the whole work in $24 \times 4 = 96$ days.

Hence, option B is correct.

32. A
As per the given information, work done by 4 boys and 3 women in 6 days must be equal to work done by 2 boys and 4 women in 9 days.

Therefore, we get

$$(4B + 3W) \times 6 = (2B + 4W) \times 9$$
\[\Rightarrow 24B + 18W = 18B + 36W\]
\[\Rightarrow 6B = 18W \Rightarrow 1B = 3W\]

Now, $2B + 4W = (2 \times 3)W + 4W = 10W$

\[\Rightarrow 10 \text{ women do a piece of work in 9 days.}\]

Similarly, $7B + 9W = (7 \times 3)w + 9W = 30W$

Now, when 10 women do a piece of work in 9 days,

30 women (thrice of 10) will do the same piece of work in 3 days ($\because$ Time $\propto \frac{1}{\text{Efficiency}}$).

Hence, option A is correct.

33. D
Since Typewriter B can do the job in 15 hours,

it can do $\frac{1}{15}$ of the job in 1 hour.
Since Typewriter C can do the job in 18 hours it can do $\frac{1}{18}$ of the job in 1 hour.

Together Typerwriters B and C can do

$$\left(\frac{1}{15} + \frac{1}{18}\right) = \left(\frac{6}{90} + \frac{5}{90}\right) = \frac{11}{90}$$

of the job in 1 hour.

Which means that it takes them $\frac{90}{11}$ hours to complete the job. Since Typewriter A completes the job in 12 hours, the ratio of the time required for A to do the job to the time required for B and C working together to do the job is

$$\frac{12}{\frac{90}{11}} = \frac{12(11)}{90} = \frac{2(11)}{15} = \frac{22}{15}$$

Hence, option (D) is correct.

34. **B**

We know that

The ratio of shares of A, B and C = The ratio of their efficiencies

$$= \frac{1}{4} : \frac{1}{7} : \frac{1}{8}$$

$$= \frac{14}{56} : \frac{8}{56} : \frac{7}{56} = 14 : 8 : 7$$
Difference between the shares of A and B in ratio $\frac{6}{29}$

∴ Actual difference in value = $\frac{6}{29} \times 53650 = 11,100/-$

Hence, option B is correct.

35. B

**Explanation:**
Suppose A, B and C take $\frac{x}{2}$ and $\frac{x}{3}$ days respectively to finish the work.

Then, $\left(\frac{1}{x} + \frac{2}{x} + \frac{3}{x}\right) = \frac{1}{2}$

$\Rightarrow \frac{6}{x} = \frac{1}{2}$

$x = 12.$

So, B takes $(12/2) = 6$ days to finish the work

36. C

**Explanation:**

$(A + B)$'s 1 day's work = $\left(\frac{1}{15} + \frac{1}{10}\right) = \frac{1}{6}$.

Work done by A and B in 2 days = $\left(\frac{1}{6} \times 2\right) = \frac{1}{3}$.

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

Now, $\frac{1}{15}$ work is done by A in 1 day.

$\Rightarrow \frac{2}{3}$ work will be done by a in $\left(15 \times \frac{2}{3}\right) = 10$ days.

Hence, the total time taken = $(10 + 2) = 12$ days.

37. A

**Explanation:**
2(A + B + C)'s 1 day's work = \( \left( \frac{1}{30} + \frac{1}{24} + \frac{1}{20} \right) = \frac{15}{120} = \frac{1}{8} \).

Therefore, (A + B + C)'s 1 day's work = \( \frac{1}{2 \times 8} = \frac{1}{16} \).

Work done by A, B, C in 10 days = \( \frac{10}{2} = \frac{5}{8} \).

Remaining work = \( 1 - \frac{5}{8} = \frac{3}{8} \).

A's 1 day's work = \( \frac{1}{16} - \frac{1}{24} = \frac{1}{48} \).

Now, \( \frac{1}{48} \) work is done by A in 1 day.

So, \( \frac{3}{8} \) work will be done by A in \( \left( 48 \times \frac{3}{8} \right) = 18 \) days.

38. **A**

**Explanation:**

Ratio of rates of working of A and B = 2 : 1.

So, ratio of times taken = 1 : 2.

B's 1 day's work = \( \frac{1}{12} \).

\[ \therefore \text{A's 1 day's work} = \frac{1}{6} \; ; \; (2 \text{ times of B's work}) \]

(A + B)'s 1 day's work = \( \left( \frac{1}{6} + \frac{1}{12} \right) = \frac{3}{12} = \frac{1}{4} \).

So, A and B together can finish the work in 4 days.

39. **B**

**Explanation:**

(20 x 16) women can complete the work in 1 day.

\[ \therefore 1 \text{ woman's 1 day's work} = \frac{1}{320} \].

(16 x 15) men can complete the work in 1 day.
1 man's 1 day's work = \( \frac{1}{240} \)

So, required ratio

\[
\frac{1}{240} : \frac{1}{320}
\]

\[
= \frac{1}{3} : \frac{1}{4}
\]

\[
= 4 : 3 \text{ (cross multiplied)}
\]
40.B
Explanation:

A's 5 days work = 50%
B's 5 days work = 33.33%
C's 2 days work = 16.66%
[100- (50+33.33)]
Ratio of contribution of work of A, B and C
= 50 : 3313 : 162350 : 3313 : 1623 = 3 : 2 : 1
A's total share = Rs. 1500
B's total share = Rs. 1000
C's total share = Rs. 500

A's one day's earning = Rs.300
B's one day's earning = Rs.200
C's one day's earning = Rs.250

41. A
Explanation:

One day's work of A, B and C = (1/24 + 1/30 + 1/40) = 1/10.
C leaves 4 days before completion of the work,
which means only A and B work during the last 4 days.
Work done by A and B together in the last 4 days = 4 (1/24 + 1/30) = 3/10.
Remaining Work = 7/10, which was done by A,B and C in the initial number of days.
Number of days required for this initial work = 7
days.
Thus, the total numbers of days required = 4 + 7 = 11 days.
42. B
Explanation:

1 man's 1 day work = 1/96 ; 1 woman's 1 day work = 1/192
Work done in 6 days = 6(896+8192) = 6×18 = 34
Remaining work = 1/4
(8 men +8 women)'s 1 day work = 1(896+8192) = 1/8
Remaining work = 1/4 - 1/8 = 1/8

1/96 work is done in 1 day by 1 man

Therefore, 1/8 work will be done in 1 day by 96 x (1/8) = 12 men

43. A
Explanation:

P can complete the work in (12 x 8) hrs = 96 hrs
Q can complete the work in (8 x 10) hrs = 80 hrs
Therefore, P's 1 hour work = 1/96 and Q's 1 hour work = 1/80
(P+Q)'s 1 hour's work = (1/96) + (1/80) = 11/480. So both P and Q will finish the work in 480/11 hrs
Therefore, Number of days of 8 hours each = (480/11) x (1/8) = 60/11

44. A
Explanation:

2(A+B+C)'s 1 day work = 1/30 + 1/24 + 1/20 = 1/8
=> (A+B+C)'s 1 day's work = 1/16
work done by A, B and C in 10 days = 10/16 = 5/8
Remaining work = 3/8
A's 1 day's work = (116−124) = 148
148116-124=148
Now, 1/48 work is done by A in 1 day.
So, 3/8 work wil be done by A in = 48 x (3/8) = 18 days
45. B
Explanation:

Ratio of rates of working of A and B = 2:1. So, ratio of times taken = 1:2
Therefore, A's 1 day's work = 1/9
B's 1 day's work = 1/18
(A+B)'s 1 day's work = 1/9 + 1/18 = 1/6
so, A and B together can finish the work in 6 days

46. D
Explanation:

(A+B)'s 1 day's work = 1/20
C's 1 day work = 1/60
(A+B+C)'s 1 day's work = 1/20 + 1/60 = 1/15
Also A's 1 day's work = (B+C)'s 1 day's work
Therefore, we get: 2 x (A's 1 day 's work) = 1/15
=> A's 1 day's work = 1/30

Therefore, B's 1 day's work = 1/20 - 1/30 = 1/60
So, B alone could do the work in 60 days.

47. B
Explanation:

Let he initially employed x workers which works for D days and he estimated 100 days for the whole work and then he doubled the worker for (100-D) days.
D * x + (100- D) * 2x = 175x
=> D = 25 days
Now, the work done in 25 days = 25x
Total work = 175x
Therefore, workdone before increasing the no of workers
= 25x175x×10025x175x×100 % = 1427%

48. A

Explanation:

\[ \begin{align*}
\text{Ratio of efficiency} & : \ 3 : 1 : 2 \\
\text{Ratio of No. of days} & : \ \frac{1}{3} : \ \frac{1}{1} : \ \frac{1}{2} \\
\text{or} & \quad 2 : 6 : 3
\end{align*} \]

Hence A is correct.

49. C

Explanation:

\[ \begin{align*}
\text{Efficiency} & : \ 5 : 3 \\
\text{No of days} & : \ 3x : 5x
\end{align*} \]

Given that, \( 5x - 6 = 3x \Rightarrow x = 3 \)

Number of days taken by A = 9

Number of days taken by C = 15

\[ \begin{align*}
\text{B : C} \\
\text{Days} & : \ 2 : 3
\end{align*} \]

Therefore, Number of days taken by B = 10

Work done by B and C in initial 2 days = \( 2[110+115]2110+115= \)
Thus, Rest work =2/3

Number of days required by A to finish 2/3 work = (2/3) x 9 = 6 days

50. B
Explanation:

\[34 \times (x-2)x = (x+7)(x-10)\]
\[\Rightarrow x^2 - 6x - 280 = 0\]
\[\Rightarrow x = 20 \quad \text{and} \quad x = -14\]
so, the acceptable values is x=20
Therefore, Total work = (x-2)x = 18 x 20 = 360 unit
Now \ 360 = 30 x k
\Rightarrow k = 12 \text{ days}

51. B
Explanation:

\[
\begin{align*}
\text{Ratio of efficiency} & \quad 10x & + & 5x & = & 9x & + & 6x \\
\quad & \quad 15x & & \quad 15x & & \quad 15x \\
\end{align*}
\]
Therefore, ratio of efficiency of A:C = 10:9
Therefore, ratio of days taken by A:C = 9:10
Therefore, number of days taken by A = 18 days

52. C
Explanation:

Let the two conditioners be A and B

'A' cools at 40min
'B' at 45min

Together = \( \frac{axb}{a+b} \)
= \( \frac{45 \times 40}{45 + 40} \)
= \( 45 \times 40/85 \)
= 21.1764
= **22 min** (approx).

53. D

**Explanation:**

Let the number of workers be \( x \).
Now, Using work equivalence method,
\( X + (X-1) + (X-2) + \ldots + 1 = X \times 55\% \) of \( X \)

\[
\Rightarrow \left[ X \times (X+1) \right] / 2 = X \times (55X/100)
\]
[because, Series is in AP. Sum of AP = \( \{\text{No. of terms (first term+ last term)/2}\} \) ]
Therefore, \( X = 10 \)

54. D

After the first 12 days, in the next 12 days Ram will again do 40% of the work. Hence, Ravi will do 20% of the work.
Therefore ram is twice as efficient as ravi. Or 100% more efficient. (since, \( (2-1)/1 \times 100 = 100\% \)).

55. C

Let’s solve this using answer options. We can see that if B takes 40 days to complete the entire work then he’ll take 20 days to do half of it. But the sum of A and B is 20.. Let’s try option c. B will do half the work in 15 days. Now using equation \( (1/a)+(1/b)=2/15 \), We see that \( a = 10 \). Hence half the job is done in 5 days. It’s the correct option.

56. D

**Method 1- Using variables**

Let the number of filling pipes be \( x \) and the number of empty pipes be \( y \). Then \( y/6 - x/8 = 1/6 \). \( 4(y-1)=3x \) Now go from answer options
We see that for x = y = 4, the relation is getting satisfied. Hence the answer is 4.

**Method 2- Using Percentage**

Inlet - 8 hours => 12.5% per hour Outlet = 6 hours => 16.66% per hour

The difference = 4.16% As the tank is full, the difference should account for 100% of the tank, as it takes 6 hours to empty 4.16 x 6 = 25% i.e. 25% work is done by one outlet pipe; therefore there has to be 4 outlet pipes therefore the number of inlet pipes = 8 - 4 = 4. Answer is option (b).

57. A

A can finish the work in 12 days. He can finish 100% of the work in 12 days. In 1 day he can finish (100/12) % = 8.33% of the work. Similarly, B can finish (100/15) % = 6.67% of the work in 1 day. When they both work together, they can finish (8.33 + 6.67) % = 15% of the work in 1 day so, to complete 100% of the work, they will take 100/15 = 6 2/3 days.

58. D

Suppose Ajit can finish the work in ‘x’ days. In one day he can do (100/x) % of the work.

As Ajit is thrice as good as Dev, Dev will do 1/3rd of what Ajit can do in a day.

So, Dev can do (100/3x)% of work in a day.

Now they complete the work in 5 days, so in 1 day they must be doing 100/5 = 20% of the work.

So, (100/x) + (100/3x) = 20 ? x = 20/3.

So, Ajit can complete the work alone in 20/3 days.

59. A

Let a, b and c be the % of the work done by A, B, and C in one day respectively.

A & B can complete the work in 12 days ? a + b = 100/12% = 8.33%

… (i)

B & C can complete the work in 15 days ? b + c = 100/15% = 6.67%

… (ii)

A & C can complete the work in 20 days ? a + c = 100/20% = 5% …
Adding (i), (ii) and (iii) \(2(a + b + c) = 20\%? \ (a + b + c) = 10\%.
So, working together they finish 10\% of work in a day. So, they can complete the work in 10 days.

60. B
A can finish the work in 16 days. In one day he can finish \((100/16)\% = 6.25\%\) of the work.
In 4 days, working alone he will finish \([(100/16)*4] = 25\%\) of the work.
Now B joins him. Amount of work left = 100 – 25 = 75\%. B can do \((100/8)\% = 12.33\%\) of the work.
A and B together can do 12.33+ 6.25 = 18.75 \% of the work in one day. Work left after A has finished 25\% of the work in 4 days = 75\%.
Hence Time taken = \[75/18.75\] = 4 days. So, total Time taken = 4 + 4 = 8 days.

61. D
Amit takes 20 days to complete the work. So, in 1 day Amit completes 100/20 = 5\% of the work.
Suraj is 25\% more efficient than Amit. So, Suraj will do \([5 + (5 *.25)] = 6.25\%\) of the work in 1 day.
Suraj joined Amit 4 days before the work was completed. This means Suraj worked for 4 days.
In four days Amit and Suraj together complete \([(5 + 6.25)*4] = 45\%\) of the work.
This means rest 55\% of the work is done by Amit alone. This 55\% of work will be completed in \((55/5) = 11\) days
So, Amit worked alone for 11 days.

62. A
The ratio of efficiency is inversely proportional to the amount of Time taken. Hence A and C will take Time in ratio 3: 5 to complete the same work.
So, in term of numbers, days have taken to complete the work:
B: C = 2: 3 A: C = 3: 5
A: B: C = 9: 10: 15
If A is taking 9x days, B takes 10x days and C takes 15x days.
A takes 4 days less than C ? 9x = 15x – 4 ? x = 2/3.
A takes 6 days, B takes 20/3 days and C takes 10 days.
In one day A does (100/6)%, B does 15% and C does 10% of the work.
If A, B and C work for two days together. So, in 2 days, amount of work done = 2(100/6+ 15 + 10)=250/3 % Amount of work left = 100 – 250/3=50/3%. This can be completed by “A” in 1 day.

63. B
Suppose A takes x days to complete the job. Then B will take x + 4 days and C will take x – 2 days to do the same job. In one day, A does (1/x)%, B does [1/(x+4)]% and C does [1/(x-2)]%.
A & B will do [1/x] + [1/(x+4)]% of the work in a day.
So, Time taken by A & B to complete the work when working together = x(x+ 4)/(2x+4)
Time taken by C = (x – 2)
Now as given, x – 2 = x(x + 4)/(2x+4)
Solving we get x = 2(1 ± v3), we neglect 2(1 ± v3) because, number of days cannot be negative
So, days taken by A = 2(1 + v3) days taken by B = 2(3 + v3)
Ratio = (1 + v3): (3 + v3).

64. D
In one month GIL can do 100/5= 20% of the work. Along with NCC, it is able to do 100/4 = 25% of the work in one month. So, amount of work done by NCC = 5% in a month. So, in the 4 months NCC has done 5*4 = 20% of the work. So, share of NCC = 20% of Rs. 35, 00, 000 = Rs. 7, 00, 000.Out of these as Sanjeev’s team is only 75% as efficient as Ramesh’s team, the money will be divided in the ratio of efficiency: Sanjeev’s team efficiency: Ramesh’s Team Efficiency = 75: 100 = 3: 4.
So, money earned by Sanjeev’s team = (3/7)× Rs.7,00,000 = Rs.3,00,000.

65. A
Equate the amount of work in terms of man – hours and volume of
the platform.
15 workers, 4 hours a day, 25 days == 120 * 10 * 14
12 workers, 5 hours a day, N days = = 600 * 14 * 12 Taking the ratio,
(15*4*25)/(12*5*N)=(120*10*14)/(600*14*12)? N = 150. They will take 150 days.

66. E

Sol.

One minute work of 1 man = \( \frac{1}{12 \times 15} \)

∴ One minute work of 9 men = \( \frac{9}{12 \times 15} = \frac{1}{20} \)

and one minute’s work of 12 women = \( \frac{12}{10 \times 24} = \frac{1}{20} \)

Let required time is x days

∴ \( \frac{6}{20} + \frac{x}{20} = 1 \)

⇒ x = 14 days

67. C

Sol.

Let Arjun’s speed = x depressions per hr.

∴ Suman’s speed = 0.6x depressions per hr.

ATQ,

\((x + 0.6x) \times 12 \times 6 = 5,76,000\)

⇒ x = 5000 depressions per hour

68. A
Sol.

One minute’s work of third tap

\[\left(\frac{1}{10} + \frac{1}{12}\right) - \frac{1}{15}\]

\[= \frac{7}{60}\]

\therefore\text{ time taken by third tap to empty the filled tank}

\[= \frac{60}{7}\text{ min or 8 min 34 sec.}\]

69. C
Sol.

Time taken by C = 12 days

Time taken by B = $3 \times \frac{12}{2} = 18$ days

Time taken by A = $\frac{12}{2} = 6$ days

One day’s work of pair BC

$$= \frac{1}{12} + \frac{1}{18} = \frac{5}{36}$$

One day’s work of pair AB = $\frac{1}{18} + \frac{1}{6} = \frac{2}{9}

One day’s work of pair CA = $\frac{1}{4} + \frac{1}{12} = \frac{1}{4}$

∴ ATQ, First three days work = $\frac{5}{36} + \frac{2}{9} + \frac{1}{4} = \frac{11}{18}$

Next two days work (by BC and AB together) = $\frac{5}{36} + \frac{2}{9} = \frac{13}{36}$

Remaining work after 5 days = $1 - \left(\frac{11}{18} + \frac{13}{36}\right) = \frac{1}{36}$

∴ Required time = $3 + 2 + \frac{4}{36} = 5\frac{1}{9}$ days

70. B
Sol.

Time taken by both pipes X and Y to fill 1/3rd of the tank

$$= \frac{1}{3} \times \left(\frac{10 \times 15}{25}\right) = 2 \text{ hrs.}$$

∴ Total time to fill the tank

$$= 2 + \frac{(10 \times 15)}{25}$$

= 8 hrs.

71. E
Sol.

Let $x$ people were supposed to work

\[ (x - 8) \times 28 = x \times 20 \]

\[ \Rightarrow 7x - 56 = 5x \]

\[ \Rightarrow x = 28 \]

72. A

Sol.

Let $X$ covers $x$ metres in the time after which he meets $Y$.

\[ \therefore \frac{x}{250} = \frac{1800 - x}{250} \]

\[ \Rightarrow 7x = 1400 - 5x \]

\[ \Rightarrow x = 3500/3 \text{ m} \]

\[ \therefore \text{Required time } = \frac{3500}{250 \times 3} \]

\[ = \frac{14}{3} \text{ min.} \]

Alternative: Required time $= \frac{1800}{250 + 150} = \frac{14}{3} \text{ min.}.$

73. B

Sol.

Let required length is $x$ metres.

\[ \frac{300 \times 1}{(405 \times 5.5 \times 4)} = \frac{2000 \times 6}{20 \times 16 \times x} \]

\[ \Rightarrow x = 6682.5 \text{ m} \]

74. B
Sol. $250 \times 30 = 20 \times 200 + x \times 125$

Or, $x = 20$ days

$\therefore$ Food last for $20 - 10$ i.e. 10 days after 30 days

75. C  
**Explanation:**
1 day work of Arun and Bala = $1/40 + 1/35 = 15/280$
Arun finished the remaining work in 30 days = $30 \times 1/40 \times 2 = 3/8$
Remaining work done by Arun and Bala = $5/8$
Worked together = $(5/8)/(15/280) = 35/3$ days.

76. C  
**Explanation:**
Efficiency of Kiran = 5%
Efficiency of Karan = 4%
They will complete only 90% of the work = $(5+4)*10 = 90$
Remaining work done by Suman = 10%.
Share of Suman = $10/100 \times 1000 = 100$

77. C  
**Explanation:**
Explanation:
$7I + 4Am = 1/6$
$7Af + 4Am = 1/8$
$7I + 7Af + 7Am = 7/24$
$1I + 1Af + 1Am = 1/24$
One Indian One American and One African will complete the work in – 24 days.

78. B  
**Explanation:**
No of days taken by Arun = 12 days
No of days(Arun:Bala:Chitra) = 2:3:1
1 day work of (Arun+Bala) = 5/36
1 day work of (Bala+Chitra) = 8/36
1 day work of (Chitra+Arun) = 9/36
5 days total work – 35/36
1/36 is done by Arun-Chitra
Number of days taken by Arun-Chitra for the rest of the work = 
\[
\frac{1}{36}/(9/36) = 1/9
\]
Total time taken to complete the work = 5 + 1/9 = 46/9 days

79. D
Explanation:
30 workers work in pairs, with no same pair of workers working together twice

\[
29\left[\frac{1}{w1} + \frac{1}{w2} \ldots + \frac{1}{w30}\right] + 6\left[\frac{1}{w1} + \frac{1}{w2} \ldots + \frac{1}{w30}\right] = 1
\]
\[
\frac{1}{w1} + \frac{1}{w2} \ldots + \frac{1}{w30} = \frac{1}{35}
\]
35 days.

80. A
Explanation:
A’s 5 days work = 50%
B’s 5 days work = 33.33%
C’s 2 days work = 16.66%
[100 - (50+33.33)]
Ratio of contribution of work of Arun, Bala and Chitra = 3 : 2 : 1
Arun’s total share = Rs. 3000
Bala’s total share = Rs. 2000
Chitra’s total share = Rs. 1000
Arun’s one day’s earning = Rs.600
Bala’s one day’s earning = Rs.400
Chitra’s one day’s earning = Rs.500

81. B
Explanation:
D * x + (100 - D) * 2x = 150x
=> D = 50 days
work done in 50 days = 50x
Total work = 150x
50x / 150x * 100 = 100/3

82. B
Explanation:
\[ \frac{3}{4} \times (x-2)x = (x+7)(x-10) \]
\[ x - 6x - 280 = 0 \]
\[ x = 20; \ x = -14 \]
\[ (x-2)x = 18 \times 20 = 360 \]
\[ 360 = 30 \times y \]
\[ y = 12 \text{ days} \]

83. C  
**Explanation:**  
Ratio of number of days = 9:10:15  
Work done By B and C in first two days = \(2 \times \frac{1}{6}\) = \(\frac{1}{3}\)  
Rest of the work = \(\frac{2}{3}\)  
Number of days = \(\frac{2/3}{1/9}\) = 6 days

84. B  
**Explanation:**  
\[ \frac{1}{x} + \frac{1}{2x} = \frac{1}{20} + \frac{1}{30} \]
\[ \frac{3}{2x} = \frac{1}{12} \]
Number of days taken by Arun = 18 days

85. A  
**Explanation:**  
Assume working days  
A = x, B = 2x, C = 2y, D = 3y  
\[ \frac{1}{x}+\frac{1}{2x} = \frac{1}{2y}+\frac{1}{3y} \]
And \(2x-2y = 16\)  
Solving we get \(x = 18\) days.

86. B  
**Explanation:**  
\[15\times(\frac{1}{80}+\frac{1}{60}) + 15\times(\frac{1}{120}+\frac{1}{40}) + x\times(\frac{1}{40}+\frac{1}{60}) = 1\]
\[X= \frac{3}{2} = 1.5\]

87. C  
**Explanation:**  
First day = \(\frac{1}{30}\)  
Second day = \(\frac{1}{30}+\frac{1}{45}\)  
Third day = \(\frac{1}{30}+\frac{1}{60}\)  
3 days work = \(\frac{3}{30}+\frac{1}{45}+\frac{1}{60} = 25/180\)
3*7 = 21 days work = 175/180
Now 1/36 work is left which can be completed by A alone
1/36*30 = 5/6
21+5/6 = 21 5/6 Days

88. B
Explanation :
Ramu takes 25 days to complete work.
Raju = 50 days Venu = 100 days
Now 70% work is left
They can complete whole work in = 1/ 1/25+1/50+1/100
100/7 days then 70% in 10 days

89. B
Explanation :
A = 21 B = 14 C =7
x/21+2*(1/14+1/7) = 1
x = 12.

90. D
Explanation :
20*(5+6+7+8+4x)/840 = 1
x= 4 hours

91. B
Explanation :
U+v+W = 72
9U = 7W
W-V = V-U
V = 24

92. A
Explanation :
(1/5+1/4)
20/9*90/100 = 2

93. D
Explanation :
1/A+1/B = 5/8
x/A+y/B = 1
x + y = 5
y = 4

94. D  
**Explanation:**

\[ 11 \times 50 / 1 / 3 = (11 + x) \times 50 / 2 / 3 \]

X = 11

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