Study-Knight Research Centre Himachal Pradesh

1.If A and B together can complete a piece of work in 15 days and B alone in 20 days, in how many days can A alone complete the work?
यदि A और B मिलकर किसी कार्य को 15 दिनों में तथा B अकेले 20 दिनों में पूरा कर सकते हैं, तो A अकेले उस कार्य को कितने दिनों में पूरा कर सकता है?
A.60
B.45
C.40
D.30
Answer: Option A
Solution:1st method:
A and B complete a work in = 15 days
One day's work of (A + B) = 1/15
B complete the work in = 20 days;
One day's work of B = 1/20
Then, A's one day's work =1/15−1/20
=4−3/6
=1/60
Thus, A can complete the work in = 60 days.
2nd method:
(A + B)'s one day's % work =100/15
= 6.66%
B's one day's % work =100/20
= 5%
A's one day's % work = 6.66 - 5 = 1.66%
Thus, A need =100/1.66
= 60 days to complete the work.
2. If A and B together can complete a work in 18 days, A and C together in 12 days, and B and C together in 9 days, then B alone can do the work in:
यदि A और B मिलकर एक काम को 18 दिनों में पूरा कर सकते हैं, A और C एक साथ 12 दिनों में, और B और C एक साथ 9 दिनों में पूरा कर सकते हैं, तो B अकेले उस काम को कितने दिनों में पूरा कर सकता है:
A. 18 days
B. 24 days
C. 30 days
D. 40 days
Answer: Option B
Solution: One day's work of (A+B) =1/18.....(1)
One day's work of (A+C) =1/12.....(2)
One day's work of (B+C)=1/9.....(3)
Adding (1), (2) and(3)
2× (A+B+C) =1/18+1/12+1/9

2(A+B+C) =1/4
One day's work of
A+B+C=1/8
B=1/8− (A+C)
B=1/8−1/12
One day's work of B=3−2/24
=1/24
Bneed24days

3. A and B together can complete a work in 3 days. They start together but after 2 days, B left the work. If the work is completed after two more days, B alone could do the work in

A और B मिलकर एक कार्य को 3 दिनों में पूरा कर सकते हैं। वे एक साथ शुरू करते हैं लेकिन 2 दिनों के बाद, B ने काम छोड़ दिया। यदि कार्य दो दिन बाद पूरा हो जाता है, तो बालोने कार्य कर सकता है

A. 5 days
B. 6 days
C. 9 days
D. 10 days
Answer: Option B
Solution:1st Method:
(A+B)'s one day's work =1/3 part
(A+B) works 2 days together =2/3part
Remaining work =1−2/3
=1/3 part
1/3 part of work is completed by A in two days
Hence, one day's work of A =1/6
Then, one day's work of B =1/3−1/6
=1/6
So, B alone can complete the whole work in 6 days.
2nd Method:
(A+B)'s one day's % work =100/3
= 33.3%
Work completed in 2 days = 66.6%
Remaining work = 33.4%
One day's % work of A =33.4/2
= 16.7%
One day's work of B = 33.4 - 16.7 = 16.7%
B alone can complete the work in,
=100/16.7
= 5.98 days
≈ 6 days.

4.A can complete a piece of work in 18 days, B in 20 days and C in 30 days, B and C together start the work and forced to leave after 2 days. The time taken by A alone to complete the remaining work is

A एक काम को 18 दिनों में पूरा कर सकता है, B 20 दिनों में और C 30 दिनों में, B और C एक साथ काम शुरू करते हैं और 2 दिनों के बाद छोड़ने के लिए मजबूर होते हैं। शेष कार्य को पूरा करने में A द्वारा अकेले लिया गया समय है:

A. 10 days
B. 12 days
C. 15 days
D. 16 days
Answer: Option C
Solution:1st Method
(B+C)2 days work
=2×(1/20+1/30)=2×3+2/60
=1/6part
Remaining work=1−1/6=5/6 part
A's one day's work=1/18 part
Time taken to complete the work=5/6/1/18days
Hence,Time taken to complete the work=5/6×18=15days
2nd Method:
% of work B completes in one day =100/20
= 5%;
% of work C completes in one day =100/30
= 3.33%;
% of work (A + B) completes together in one day = 5 + 3.33 = 8.33%;
% work (A + B) completes together in 2 days = 8.66 × 2 = 16.66%;
Remaining work = 100 - 16.66 = 83.34%;
% of work A completes in 1 day =100/18
= 5.55%
Time taken to complete the remaining work by A
=83.34/5.55
= 15 days

5.Working 5 hours a day, A can Complete a work in 8 days and working 6 hours a day, B can complete the same work in 10 days. Working 8 hours a day, they can jointly complete the work in:

प्रतिदिन 5 घंटे कार्य करके, A एक कार्य को 8 दिनों में पूरा कर सकता है और प्रतिदिन 6 घंटे कार्य करके, B उसी कार्य को 10 दिनों में पूरा कर सकता है। प्रतिदिन 8 घंटे कार्य करके, वे संयुक्त रूप से कार्य को कितने समय में पूरा कर सकते हैं:

A. 3 days
B. 4 days
C. 4.5 days

D. 5.4 days
Answer: Option A
Solution:1st Method:
Working 5 hours a day, A can complete the work in 8 days i.e.
= 5 × 8 = 40 hours
Working 6 hours a day, B can complete the work in 10 days i.e.
= 6 × 10 = 60 hours
(A + B)'s 1 hour's work,
=1/40+1/60
=3+2/120
=5/120
=1/24
Hence, A and B can complete the work in 24 hours i.e. they require 3 days to complete the work.
2nd Method:
% 1 hour's work of A =100/40
= 2.5%
% 1 hour's work of B =100/60
= 1.66%
(A + B) one hour's % work,= (2.5 + 1.66) = 4.16%
Time to complete the work,
=100/4.16
= 24 hours
Then , 24/8
= 3 days
They need 3 days, working 8 hours a day to complete the work.

6. Ganga and Saraswati, working separately can mow field in 8 and 12 hours respectively. If they work in stretches of one hour alternately. Ganga is beginning at 9 a.m., when will the moving be completed?

गंगा और सरस्वती अलग-अलग काम करते हुए क्रमशः 8 और 12 घंटे में खेत को काट सकती हैं। यदि वे बारी-बारी से एक घंटे की अवधि में काम करते हैं। सुबह 9 बजे शुरू हो रहा है गंगा का चलन, कब होगा पूरा?

A. 6:20 PM
B. 6:30 PM
C. 6:36 PM
D. 6:42 PM
Answer: Option B
Solution:Time and Work mcq solution image
According to question,
Ganga begins at 9 am and she does 3 units/hours
Saraswati begins at 10 am and she does 2 units/hours

So by 11 am they complete 5 units
Time =T.W./3+2
=24/5
(4 cycle of 2 hrs each + 4 units left)
And now ganga will complete 3 unit out of 4 units in 1 hr
Now, rest 1 unit work done by =1/2hr
Total time = 8 + 1 +1/2
= 9,1/2hr
Hence, Work finished at
= 9 am + 9,1/2hr
= 6:30 PM
Alternate Solution:
Work done by Ganga in 1 hour =1/8
Work done by Saraswati in 1 hour =1/12
They are working alternatively with Ganga beginning the job.
Work done in every two hours =1/8+1/12
=5/24
Work done in 4 × 2 = 8 hours =5×4/24
=5/6
Remaining work = 1 -5/6
=1/6
In 9th hour, Ganga starts the work and does
1/8 of the work
Work remaining =1/6-1/8
=1/24
In 10th hour, Saraswati starts the work
Time needed to finish the remaining work
=1/24/1/12
=1/24×12
=0.5 hours
=30 minutes
i.e., work will be completed in 9 hour 30 minutes, after 9 AM
i.e., at 6:30 PM

7. If 10 men can do a piece of work in 12 days, the time taken by 12 men to do the same piece of work will be:

यदि 10 आदमी एक काम को 12 दिनों में कर सकते हैं, तो 12 आदमी उसी काम को करने में लगने वाला समय होगा:

A. 12 days
B. 10 days
C. 9 days
D. 8 days

Answer: Option B
Solution:Here, we use work equivalence method;
$10 \times 12 = 12 \times x$
Or, x = 10 days
To understand the work equivalence method, we use a graphic as follows:
Men Days
10 ↓ 12
12 ↑ x (let)
Here, the two arrows, downward (↓) and upward (↑) show variation between men and days.
[If downward arrows show decrements then upward arrows show increments and vice-verse.]
Thus,
10/12=x/12
or, x=10×12/12
=10days

8.To complete a work, A takes 50% more time than B. If together they take 18 days to complete the work, how much time shall B take to do it?
किसी काम को पूरा करने में A को B से 50% अधिक समय लगता है। यदि उन्हें मिलकर काम पूरा करने में 18 दिन लगते हैं, तो B को इसे पूरा करने में कितना समय लगेगा?
A. 30 days
B. 35 days
C. 40 days
D. 45 days
Answer: Option A
Solution: We have B=3/2×A
→A=23×B
One day'swork,⇒A+B=1/18
⇒2/3×B+B=1/18
⇒5/3×B=1/18
One day's work of B=3/90
B alone can complete the work in
=90/3=30days

9. If 10 men or 20 boys can make 260 mats in 20 days, then how many mats will be made by 8 men and 4 boys in 20 days?
यदि 10 आदमी या 20 लड़के 20 दिन में 260 चटाई बना सकते हैं, तो 8 आदमी और 4 लड़के 20 दिन में कितनी चटाई बनायेंगे?
A. 260
B. 240
C. 280
D. 520
Answer: Option A
Solution:10 men = 20 boys

→1 men = 2 boys
8 men = 2 × 8 boys = 16 boys
Then,
(16 boys + 4 boys) = 20 boys can make 260 mats in 20 days
Now,
It can be calculated by work equivalence method:
20 × 260 × 20 = x × 20 × 20
x = 260 mats

10. A complete 7/10 of a work in 15 days, then he completed the remaining work with the help of B in 4 days. In how many day A and B can complete entire work together?
A किसी कार्य का 7/10 भाग 15 दिनों में पूरा करता है, फिर वह शेष कार्य B की सहायता से 4 दिनों में पूरा करता है। A और B मिलकर पूरा काम कितने दिनों में पूरा कर सकते हैं?
A.10,1/2days
B.12,2/3days
C.13,1/3days
D.8,1/4days
Answer: Option C
Solution: 7/10
part of work has been completed by A in 15 days. Then,
Rest work = 1 -7/10
=3/10 part
Given, That 3/10 part of the work is completed by A and B together in 4 days. Means,
(A + B) completed the 3/10 of work in 4 days
So, (A + B)'s 1 day's work =3/10×4
=3/40
Hence,
(A + B) can complete the work in
40/3
=13,1/3days

11. A can complete a piece of work in 36 days, B in 54 days and C in 72 days. All the three began the work the work together but A left 8 days before the completion of the work and B 12 days before the completion of work. Only C worked up to the end. In how many days was the work completed?
A एक काम को 36 दिनों में, B 54 दिनों में और C 72 दिनों में पूरा कर सकता है। तीनों ने एक साथ काम शुरू किया लेकिन A ने काम पूरा होने से 8 दिन पहले छोड़ दिया और B ने काम पूरा होने से 12 दिन पहले छोड़ दिया। केवल C ने अंत तक कार्य किया। कार्य कितने दिनों में पूरा हुआ?
A. 24 days
B. 25 days
C. 27 days
D. 30 days

Answer: Option A
Solution:Let the work be completed in x days. C work for x days then A works for (x - 8) days and B works for (x - 12) days.
According to the question,
$x-8/36+x-12/54+x/72=1$
$6x-48+4x-48+3x/216=1$
$13x-96=216$
$13x=216+96=312$
$x=312/13$
$x=24$days

12.While working 7 hour a day, A alone can complete a piece of work in 6 days and B alone in 8 days. In what time would they complete it together, 8 hour a day?
दिन में 7 घंटे काम करते हुए, A अकेले 6 दिनों में और B अकेले 8 दिनों में एक काम पूरा कर सकता है। प्रतिदिन 8 घंटे, वे मिलकर इसे कितने समय में पूरा करेंगे?
A. 3 days
B. 4 days
C. 2.1 days
D. 3.6 days
Answer: Option A
Solution:A can complete the work in 7 × 6 = 42 hours
1 hour's work of A =1/42
B can complete the work in 7 × 8 = 56 hours
1 hour's work of B =1/56
(A + B)'s 1 hour's work
=1/42+1/56
=4+3/168
=7/168
∴ Time taken by (A + B) working 8 hours daily
168/7×8=3days

13. Two pipes, P and Q can fill a cistern in 12 and 15 minutes respectively. Both are opened together, but at the end of 3 minutes, P is turned off. In how many more minutes will Q fill the cistern?
दो पाइप, **P** और **Q** एक टंकी को क्रमशः 12 और 15 मिनट में भर सकते हैं। दोनों को एक साथ खोला जाता है, लेकिन 3 मिनट के अंत में, **P** बंद हो जाता है। **Q** कितने मिनट में टंकी भरेगा**?**
A. 7 minutes
B.7,1/2minutes
C. 8 minutes
D. 8,1/4minutes
Answer: Option D
Solution: P can fill cistern in 12 minutes
P fills cistern in 1 minute =1/12

Q can fill cistern in 15 minutes
Q fills cistern in 1 minute =1/15part
P and Q together can fill cistern in 1 minute,
=1/12+1/15⇒9/60 part
So, they can together fill cistern in 3 minute,
=3×9/60⇒9/20 part
Rest Cistern =1−9/20
=11/20 part
11/20 part cistern must be filled by Q in
11/20/1/15=8,1/4 minutes
Alternatively,
Pipe P can fill cistern in one minute =100/12
= 8.33%
Pipe Q can fill cistern in one minute =100/15
= 6.66%
(P + Q) together can fill the cistern in one minute = 15%;
In 3 minutes cistern is filled = 45%
P become off, then rest of cistern will be filled by Pipe Q in =556.66
=814minutes.

14. Two pipes can fill an empty tank separately in 24 minutes and 40 minutes respectively and a third pipe can empty 30 gallons of water per minute. If all three pipes are open, empty tanks become full in one hour. The capacity of the tank (in gallons) is:
दो पाइप एक खाली टैंक को अलग-अलग क्रमशः 24 मिनट और 40 मिनट में भर सकते हैं और एक तीसरा पाइप प्रति मिनट 30 गैलन पानी खाली कर सकता है। यदि तीनों पाइप खुले हों, तो खाली टंकियाँ एक घंटे में भर जाती हैं। टैंक की क्षमता (गैलन में) है:

A. 800 gallons
B. 600 gallons
C. 500 gallons
D. 400 gallons
Answer: Option B
Solution: Let capacity of the tank = x gallons;
Part of the tank filled in 1 minute
=x/24+x/40−30 Or, x/24+x/40−30=x/60
Or, x/24+x/40−x/60=30 Or,10x+6x−4x/240=30 Or,12x=30×240 Or ,x=600gallons

15.A cistern can be filled by two pipes in 20 and 30 minutes respectively. Both pipes being opened, when the first pipe must be turned off so that the cistern may be filled in 10 minutes more.
एक टंकी को दो पाइपों द्वारा क्रमशः 20 और 30 मिनट में भरा जा सकता है। दोनों पाइप खोले जा रहे हैं, जब पहला पाइप बंद किया जाना चाहिए ताकि टंकी 10 मिनट में भर सके।

A. After 10 minutes
B. After 12 minutes

C. After 20 minutes
D. After 8 minutes
Answer: Option D
Solution:% Cistern is filled by 1st pipe in one minute =100/20
= 5%
% Cistern is filled by 2nd pipe in one minute =100/30
= 3.33%
% cistern filled by 1st and 2nd pipes in one minute = 8.33%
According to question,
Cistern is totally filled by 2nd pipe in last 10 minute.
That means 2nd pipe filled 33.3% of the cistern in last 10 minute and 66.66% of cistern is filled by 1st and 2nd pipe together in =66.668.33
= 8 minutes
Thus, after 8 minute, 1st pipe must be turned off.
16. **A tank can be filled with water by two pipes A and B together in 36 minutes. If the pipe B was stopped after 30 minutes, the tank is filled in 40 minutes. The pipe B can alone fill the tank in:**
एक टैंक को दो पाइप A और B द्वारा मिलकर 36 मिनट में पानी से भरा जा सकता है। यदि पाइप B को 30 मिनट के बाद बंद कर दिया जाता है, तो टैंक 40 मिनट में भर जाता है। पाइप B अकेले टैंक को भर सकता है:
A. 45 minutes
B. 60 minutes
C. 75 minutes
D. 90 minutes
Answer: Option D
Solution:Let the pipes fill the tank in x minutes.
Part of tank filled by pipes A and B in one minute:
136 Part of the tank filled by pipe A in 1 minute =136−1x
According to the question,
30×1/x+40(1/36−1/x)=1⇒
30/x+40/36−40/x=1
⇒30/x+10/9−40/x=1
⇒10/x=1/9
hence, x= 90 minutes
Alternatively,
% of tank filled by (A+B) in 1 minute =100/36
= 2.78%
% of tank filled in 30 minutes = 2.78 × 30 = 83%
That means 17% of tank can be filled by A in last 10 minutes
Then, % tank filled by A in 1 minute =17/10
= 1.7%

% of tank filled by B in 1 minute = 2.78 - 1.7 = 1.1%
So, B alone can fill 100% tank in,
=100/1.1
= 90 minutes (approx.)

17. A boy and a girl together fill a cistern with water. The boy pours 4 liters of water every 3 minutes and girl pours 3 litres every 4 minutes. How much time will it take to fill 100 litres of water in the cistern?

एक लड़का और एक लड़की मिलकर एक टंकी को पानी से भरते हैं। लड़का हर 3 मिनट में 4 लीटर पानी डालता है और लड़की हर 4 मिनट में 3 लीटर पानी डालती है। टंकी में 100 लीटर पानी भरने में कितना समय लगेगा?

A. 36 minute
B. 42 minutes
C. 48 minutes
D. 44 minutes
Answer: Option C
Solution:Water filled by (boy + girl) in one minute,
4/3+3/4=16+9/12
=25/12liter
Hence, time taken to fill 100 liter,
= 100×12/25=48minute

18. A tank has a leak which would empty the completely filled tank in 10 hours. If the tank is full of water and a tap is opened which admits 4 litres of water per minutes in the tank, the leak takes 15 hours to empty the tank. how many litres does the tank hold?

एक टैंक में रिसाव है जो पूरी तरह से भरे हुए टैंक को 10 घंटे में खाली कर देगा। यदि टैंक पानी से भरा हुआ है और एक नल खोला गया है जो टैंक में प्रति मिनट 4 लीटर पानी स्वीकार करता है, तो रिसाव के कारण टैंक को खाली होने में 15 घंटे लगते हैं। टैंक में कितने लीटर की क्षमता है?

A. 2400 litres
B. 4500 litres
C. 1200 litres
D. 7200 litres
Answer: Option D
Solution:Let the capacity of the tank = q litres
According to the question,
Quantity of water emptied by the leak in 1 hour =q10 litres
Qunatity of water filled by the tap in 1 hour = 240 litres
According to the question,
⇒q/10−q/15=240
⇒3/q−2q/30=240
⇒9/30=240
⇒q=240×30

⇒q=7200litres

19. A, B and C completed a work costing Rs. 1800. A work for 6 days, B for 4 days and C for 9 days. If their daily wages are in the ratio of 5 : 6 : 4, how much amount will be received by A? .

ए, बी और सी ने रुपये की लागत वाला एक काम पूरा किया। 1800. A ने 6 दिन, B ने 4 दिन और C ने 9 दिन काम किया। यदि उनका दैनिक वेतन 5:6:4 के अनुपात में है, तो A को कितनी राशि प्राप्त होगी?

A. Rs. 800
B. Rs. 600
C. Rs. 900
D. Rs. 750
Answer: Option B
Solution: Ratio of their daily wages = 5 : 6 : 4
Total wage = Rs. 1800
6 × 5x + 4 × 6x + 4 × 9x = 1800 [As A, B, C works for 6, 4, 9 days respectively]
Or, 90x = 1800
Or, x =1800/90
Total amount of A =1800×30/90
= Rs. 600

20. A man and a boy received Rs. 800 as wages for 5 days for the work they did together. The man's efficiency in the work was thrice times that of the boy. What are the daily wages of the boy?

एक आदमी और एक लड़के को रु। उन्होंने एक साथ जो काम किया उसके लिए उन्हें 5 दिनों की मजदूरी 800 रुपये मिली। काम में उस आदमी की दक्षता लड़के से तीन गुना अधिक थी। लड़के की दैनिक मजदूरी कितनी है?

A. Rs. 76
B. Rs. 56
C. Rs. 44
D. Rs. 40
Answer: Option D
Solution: Man = 3 boy
Daily wages for them =800/5
= 160
4 boy (1 man + 1 boy) = 160
4 boy = 160
Or, boy = Rs. 40

21. Subhash can copy 50 pages in 10 hours; Subhash and Prakash together can copy 300 pages in 40 hours. In how much time can Prakash copy 30 pages ?

सुभाष 10 घंटे में 50 पेज कॉपी कर सकते हैं; सुभाष और प्रकाश मिलकर 40 घंटे में 300 पेज कॉपी कर सकते हैं। प्रकाश कितने समय में 30 पेज कॉपी कर सकता है?

A. 13 hour
B. 12 hour
C. 11 hour
D. 9 hour
Answer: Option B
Solution : Number of page copied by (Subhash + Prakash) in 1 hour = 300/40
= 7.5 pages;
Subhash copied pages in one hour =50/10
= 5 pages
Hence, Prakash copied pages in one hour = 7.5 - 5 = 2.5
Thus,
Prakash can copied 30 pages in =30/2.5= 12 hour

22. An engineer undertakes a project to build a road 15 km long in 300 days and employs 45 men for the purpose. After 100 days, he finds 2.5 km of the road has been completed. Find the (approx.) number of extra men he must employ to finish the work in time.

एक इंजीनियर 300 दिनों में 15 किमी लंबी सड़क बनाने का प्रोजेक्ट लेता है और इस उद्देश्य के लिए 45 लोगों को नियोजित करता है। 100 दिनों के बाद, उसे पता चला कि 2.5 किमी सड़क पूरी हो चुकी है। समय पर काम पूरा करने के लिए उसे कितने अतिरिक्त आदमियों को नियुक्त करना होगा (लगभग) संख्या ज्ञात करें

A. 43
B. 45
C. 55
D. 68
Answer: Option D
Solution : Variation Method:
In 100 days only 2.5 km road i.e. 16.66 % of work has been completed

Men	Days	Road (km)
45	100↓	2.5
x↑	200	12.5↑

Arrows show the directions of variation of quantity with respect to each other
x/45=100×12.5/200×2.5
x = 113 men;
Required men to be increased,
= 113 - 45
= 68

23. There is provision of food in fort for 1200 soldiers for 60 days. After 15 days, 200 soldiers leave the fort. Remaining food will last for how many days?

किले में 1200 सैनिकों के लिए 60 दिनों तक भोजन की व्यवस्था होती है। 15 दिनों के बाद 200 सैनिक किला छोड़ देते हैं। बचा हुआ खाना कितने दिनों तक चलेगा?

A. 56 days
B. 50 days
C. 54 days
D. 48 days
Answer: Option C
Solution:Work equivalence method:
1200 × 45 = 1000 × x
Hence, x = 54 days
Variation Method:
After 15 days 200 soldiers leaved.
Soldiers Food for days
1200 ↓ 45
1000 ↑ x (let)
Arrows show the opposite variation to each other
1200/1000=x/45
Or, x =1200×45/1000
= 54 days.

24. A and B working together completed a job in 5 days. If A works twice as efficiently as he actually did and B worksA and B working together completed a job in 5 days. If A works twice as efficiently as he actually did and B works
1/3 of actual efficiency, the work would have completed in 3 days. Find the for A to complete the job alone.
A और B ने मिलकर एक काम 5 दिनों में पूरा किया। यदि A वास्तव में उससे दोगुनी कुशलता से काम करता है और B काम करता है तो A और B एक साथ काम करते हुए 5 दिनों में एक काम पूरा करते हैं। यदि A वास्तव में उससे दोगुनी कुशलता से काम करता है और B काम करता है वास्तविक दक्षता का 1/3, कार्य 3 दिनों में पूरा हो जाएगा। A द्वारा अकेले कार्य पूरा करने के लिए एक को खोजें।
A.6,1/2
B.6,1/4
C.6,3/4
D.12,1/2
Answer: Option B
Solution:One Day's work of A and B together,
1/A+1/B=1/5.....(i)
When A works with twice efficiency,Then,
2/A+13/B=1/3.....(ii)
on solving equations (i) and (ii), we get
A=25/4=6,1/4

25. Two pipes A and B can fill a cistern in 12 min and 16 min respectively. Both the pipes are opened together for a certain time but due to some obstruction the flow of water was restricted to 7/8 of full flow in pipe A and

5/6 of full in pipe B. This obstruction is removed after some time and tank is now filled in 3 min from that moment. How long was it before the full flow.

दो पाइप A और B एक टंकी को क्रमशः 12 मिनट और 16 मिनट में भर सकते हैं। दोनों पाइपों को एक निश्चित समय के लिए एक साथ खोला जाता है लेकिन कुछ रुकावट के कारण पानी का प्रवाह पाइप ए में पूर्ण प्रवाह के 7/8 तक सीमित था औरपाइप बी का 5/6 भाग भर गया है। कुछ समय बाद यह रुकावट दूर हो जाती है और टंकी अब 3 मिनट में भर जाती है। पूर्ण प्रवाह से पहले कितना समय था.

A. 8 min
B. 3 min
C. 5.6 min
D. 4.5 min
Answer: Option D
Solution:Let the obstruction remain for x min.
Hence,
Part of cistern filled in X min + part of cistern filled in 3 min = full cistern
[7x/8×12+5x/6×16]+[3/12+3/16] = 1
12x96+716=1
Thus,
X = 4.5 min.

26. Three pipes A,B and C attached to a cistern. A can fill it in 10 min, B in 15 min, C is a waste pipe for emptying it. After opening both the pipes A and B, a man leaves the cistern and returns when the cistern should have been just full. Finding, however, that the waste pipe had left open, he closes it and the cistern now gets filled in 2 min. In how much time the pipe C, if opened alone, empty the full cistern?

तीन पाइप A,B और C एक टंकी से जुड़े हुए हैं। A इसे 10 मिनट में भर सकता है, B इसे 15 मिनट में भर सकता है, C इसे खाली करने के लिए एक बेकार पाइप है। दोनों पाइप ए और बी खोलने के बाद, एक आदमी टंकी से बाहर निकल जाता है और वापस लौट आता है जबकि टंकी पूरी तरह भर जानी चाहिए थी। हालाँकि, जब उसे पता चला कि अपशिष्ट पाइप खुला रह गया है, तो उसने उसे बंद कर दिया और टंकी अब 2 मिनट में भर गई। यदि पाइप C को अकेले खोला जाए तो कितने समय में पूरी टंकी खाली हो जाएगी?

A. 12 min
B. 16 min
C. 18 min
D. 15 min
Answer: Option C
Solution:Let pipe C alone can empty the cistern in x min.
A fills cistern in 1 min =1/10
B fills cistern in 1 min =1/15
A and B together fill in 1 min
=10×15/10+15=150/25=6min

Since, waste pipe was left open for 6 min then,
6 min, 6/x part of cistern will be emptied by C
Now,
6/x part of the cistern would be filled by A and B in 2 min.
Hence,
cistern will be filled in
3/x min. And x/3
= 6
x = 18 min.

27. There is a group of 5 boys and 2 girls. The two groups working together can do four times as much work as a boy and a girl. Ratio of working capacities of a boy and a girl is:

5 लड़कों और 2 लड़कियों का एक समूह है। एक साथ काम करने वाले दो समूह एक लड़के और एक लड़की की तुलना में चार गुना अधिक काम कर सकते हैं। एक लड़के और एक लड़की की कार्य क्षमता का अनुपात है:

A. 2 : 1
B. 2 : 3
C. 1 : 3
D. 1 : 2

Answer: Option A
Solution:Let 1 boy's 1 day's work = x
And 1 girl's 1 day's work = y
Now,
(5 boys + 2 girls)'s work = 5x + 2y
Given ,
5x + 2y is equal to 4 times work done by a boy and a girl
Thus,
5x + 2y = 4(x + y)
5x + 2y = 4x + 4y
x = 2y
x/y=2/1
Hence, the required ratio is 2 : 1

28.A group of 12 men can do a piece of work in 14 days and other group of 12 women can do the same work in 21 days. They begin together but 3 days before the completion of work, man's group leaves off. The total number of days to complete the work is:

12 पुरुषों का एक समूह एक काम को 14 दिनों में कर सकता है और 12 महिलाओं का एक अन्य समूह उसी काम को 21 दिनों में कर सकता है। वे एक साथ शुरू करते हैं लेकिन काम पूरा होने से 3 दिन पहले, आदमी का समूह निकल जाता है। कार्य पूरा करने के लिए कुल दिनों की संख्या है:

A.654
B.933

C.515
D. 60
Answer: Option C
Solution: Let x be the required number of days
Given,
12 men and 12 women can complete a work separately in 14 days and 21 days respectively
Then,
12 men's 1 day work =1/14
And,
12 women's 1 day work =1/21
Then ,
12 women's 3 days work =3/21
=1/7
The remaining work =1−1/7
=6/7
Man's group leaves 3 days before the completion of work
That is, they were working together for x - 3 days
Thus, we have
1/7
work left to be done in last 3 days by the women's group. This also means
6/7th of work has been done by both the groups (before men left)
Now, (12 men + 12 women)'s 1 day work =
1/14+1/21
=5/42
i.e.,
5/42 work is done by 2 groups in 1 day.
So,6/7 of work is done by 2 groups together in
42/5×6/7
=36/5 days
Total time take to complete the work will be
=36/5+ 3
=51/5

29.Vimal can do a piece of work in 20 days, Vimal and Kamal together can do in 12 days. If Kamal does the work only for half a day daily then in how many days the work will be completed ?

विमल एक काम को 20 दिनों में कर सकता है, विमल और कमल मिलकर 12 दिनों में कर सकते हैं। यदि कमल प्रतिदिन केवल आधा दिन कार्य करे तो कार्य कितने दिन में पूरा होगा?

A.15
B.30
C.25
D.10

Answer: Option D
Solution: Vimal's 1 day work =1/20
Since, Vimal and Kamal can together complete in 12 days
i.e. (Vimal + Kamal)'s 1 day work =1/12
Then,
Kamal's 1 day work,
=1/12−1/20⇒2/60⇒1/30
If Kamal Works only for half a day daily, then his 1 day work becomes
1/2×1/30
=1/60
Therefore, 1 day work of both Vimal and Kamal,
=1/20+1/60
⇒4/60
⇒1/15
Hence, the work will be completed in 15 days.

30. There are three boats A, B and C, working together they carry 60 people in each trip. One day an early morning A carried 50 people in few trips alone. When it stopped carrying the passengers B and C started carrying the people together. It took a total of 10 trips to carry 300 people by A, B and C. It is known that each day on an average 300 people cross the river using only one of the 3 boats A, B and C. How many trips it would take to A to carry 150 passengers alone?

तीन नावें A, B और C हैं, एक साथ काम करते हुए वे प्रत्येक यात्रा में 60 लोगों को ले जाती हैं। एक दिन सुबह-सुबह A अकेले कुछ यात्राओं में 50 लोगों को ले गया। जब उसने यात्रियों को ले जाना बंद कर दिया तो B और C ने एक साथ लोगों को ले जाना शुरू कर दिया। A, B और C द्वारा 300 लोगों को ले जाने में कुल 10 यात्राएँ लगीं। यह ज्ञात है कि प्रत्येक दिन औसतन 300 लोग 3 नावों A, B और C में से केवल एक का उपयोग करके नदी पार करते हैं। यह कितनी यात्राएँ होंगी 150 यात्रियों को अकेले ले जाने के लिए A पर जाएं?

A. 15
B. 30
C. 25
D. 10

Answer: Option A
Solution: Combined efficiency of all the three boats = 60 passengers /trip
Now, consider option (A)
15 trips and 150 passengers means efficiency of A = 10 passengers per trip
A's efficiency = 10 passengers per trip
Then, (B + C) combined efficiency = 50 passengers per trip
Since, combined efficiency is 60 so option (A) is correct

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