CAPSTONE

Math Lecture#08

পেট্রোবাংলা স্পেশাল কোর্স

Topic: Arithmetic

- ☑ Unitary Method
- ☑ Work

Name: **Batch:**

Panthapath : 01972-277866
Mirpur : 01970-985421
Mouchak : 01999-017011
Chittangong : 01970-985420

Class Test on Lecture Sheet 7

Time: 10 minutes **Obtained Mark:** **Total Marks: 10**

1. The speed of three cars are in the ratio 2: 3: 4. The ratio of the times taken by these cars to travel the same distance is-
   A. 2: 3: 4 B. 4: 3: 2 C. 6: 4: 3 D. 3: 4: 6 E. None of these

2. A car is driving at the speed of 100 km/hr and stops for 10 minutes at the end of every 150 km. To cover a distance of 1000 km, it will take-
   A. 12 hour B. 10 hour C. 11 hour D. 9 hour E. None of these

3. 10 minutes after a plane leaves the airport, it is reported to be 40 miles away. What is the average speed in miles per hour of the plane? [Govt. Bank (Cash Officer) ('20)-2023]
   A. 560 B. 400 C. 240 D. 220

4. A train 125m long passes a man, running at 5 km/hr in the same direction in which the train is going, in 10 seconds. The speed of the train is-
   A. 45 km/hr B. 50 km/hr C. 54 km/hr D. 55 km/hr E. 40 km/hr

5. A train 220 m long is moving at 45 km/h. The train taken by the train to cross a tunnel 260 m long is-
   A. 25 sec. B. 35 sec. C. 38 sec. D. 40 sec. [প্রতিরক্ষা মন্ত্রণালয় (সহঃ পরি.)-২২]

6. A traveled p miles in 40 minutes and completed the remaining 200 miles of the trip in q minutes. What was its average speed, in miles per hour for the entire trip?
   [Biman Bangladesh Airlines (Ground Service Assistant) 2018]
   A. $\frac{60(p+200)}{40+q}$ B. $\frac{240}{(p+q)}$ C. $\frac{4}{(p+q)}$ D. $\frac{40+q}{60(p+200)}$ E. None of these

7. Two train starting at the same time from 2 station 400 km apart and going in opposite direction cross each other at a distance of 240 km from one of the stations. What is the ratio of their speeds?
   [BCIC (AM-Admin) 2018]
   A. 2: 3 B. 5: 2 C. 8: 2 D. 2: 8 E. 3: 2

8. A bus travels a distance of 315 km at a uniform speed. If the speed of the bus were 90% of the original speed, it would have taken 2.5 hours more to cover the same distance. The original speed was-
   [EXIM Bank (Trainee Officer) 2020]
   A. 14.5 km/h B. 14 km/h C. 13 km/h D. 15 km/h E. None of these

9. In a 100 m race, Asif covers the distance in 36 seconds and Raihan in 45 seconds. In this race, Asif beats Raihan by-
   A. 22 m B. 25 m C. 20 m D. 22.5 m

10. A train travels at an average speed of 90 km/hr without any stoppage. However, its average speed decrease to 60 km/hr on account of stoppage. On an average, how minute per hour does the train stop?
    A. 12 minute B. 18 minute C. 20 minute D. 24 minute E. 30 minute

ঐকিক নিয়ম (Unitary Method)

ঐকিক নিয়মে আমরা একটি পণ্যের দাম থেকে নির্দিষ্ট সংখ্যাক পণ্যের দাম এবং নির্দিষ্ট সংখ্যক পণ্যের দাম থেকে একটি বা অন্য নির্দিষ্ট সংখ্যক পণ্যের দাম বের করতে পারি।

- একটি পণ্যের দাম দেওয়া থাকলে যে কয়টি পণ্যের দাম বের করতে বলা হবে তত দিয়ে গুণ করতে হবে।
- কিছু সংখ্যক পণ্যের দাম দেওয়া থাকলে ঐ সংখ্যা দিয়ে ভাগ করলে একটি পণ্যের দাম পাওয়া যাবে। আবার অন্য কোন সংখ্যক পণ্যের দাম বের করতে প্রাপ্ত একটি পণ্যের দামের সাথে নির্ণয় সংখ্যা গুণ করতে হবে।
- যার মান বের করতে হবে তাকে শেষে রেখে হিসাব করতে হবে।

1. If 24 painters working for hours a day, for painting a house in 16 days. How many painters are required working for 8 hours a day will finish painting the same house in 12 days?
   Solution: To paint a house in 16 days working daily 7 hours required 24 painters
   To paint a house in 1 day daily 1 hour required $24 \times 16 \times 7$ painters
   To paint a house in 12 days working daily 8 hours required $\frac{24\times16\times7}{12\times8} = 28$ painters (Answer)

2. 11 potters can make 143 pots in 8 days. How many potters will be required to make 169 pots in 4 days?
   Solution: In 8 days to make 143 pots require 11 potters
   In 1 days to make 1 pot require $\frac{11\times8}{143}$ potters
   In 4 days to make 169 pots require $\frac{11\times8\times169}{4\times143} = 26$ potters (Answer)

কাজ (Work)

- একজন শ্রমিক একটি কাজ n দিনে শেষ করতে পারলে 1 দিনে কাজ করে $\frac{1}{n}$ অংশ।
- একজন শ্রমিক একটি কাজ m দিনে এবং অন্যজন শ্রমিক একই কাজ n দিনে শেষ করলে, তারা একত্রে ঐ কাজ শেষ করবে $\frac{mn}{m+n}$ দিনে।
- A একা একটি কাজ m দিনে এবং A ও B একত্রে ঐ কাজটি n দিনে করতে পারলে B কাজটি একা করতে পারবে $\frac{mn}{m-n}$ দিনে।

1. একটি কাজ 'ক' ১২ দিনে এবং 'খ' ২৪ দিনে শেষ করতে পারে। 'ক' ও 'খ' একত্রে কাজ করলে কাজটি শেষ হতে কতদিন লাগবে?
   ক. ৮ দিনে খ. ৬ দিনে গ. ৪ দিনে ঘ. ১ দিনে
   সমাধান: ক ১ দিনে করে $\frac{1}{12}$ অংশ এবং খ ১ দিনে করে $\frac{1}{24}$ অংশ
   $\therefore$ ক ও খ একত্রে কাজ করে $= \left(\frac{1}{12} + \frac{1}{24}\right) = \frac{2+1}{24} = \frac{3}{24} = \frac{1}{8}$ অংশ
   $\frac{1}{8}$ অংশ কাজ শেষ হয় ১ দিনে
   ১ অংশ কাজ শেষ হয় $\frac{1}{\frac{1}{8}} = \frac{1\times8}{1} = 8$ দিনে (উত্তর: ক. ৮ দিনে)

2. 'ক' একটি কাজ ১২ দিনে করতে পারে। 'ক' ও খ' একত্রে কাজ করলে সম্পূর্ণ কাজ শেষ করতে সময় লাগে ৮ দিন। 'খ' একা কত দিনে কাজটি করতে পারবে?
   ক. ১৬ দিন খ. ২০ দিন গ. ২৪ দিন ঘ. ৯৬ দিন
   সমাধান: ক ১ দিনে কাজ করতে পারে $\frac{1}{12}$ অংশ
   ক ও খ একত্রে ১ দিন কাজ করতে পারে $\frac{1}{8}$ অংশ
   $\therefore$ খ একা ১ দিনে কাজ করতে পারে $= \left(\frac{1}{8} - \frac{1}{12}\right) = \frac{3-2}{24} = \frac{1}{24}$ অংশ
   খ $\frac{1}{24}$ অংশ কাজ করতে পারে ১ দিনে
   খ ১ অংশ কাজ করতে পারে $\frac{1}{\frac{1}{24}} = \frac{1\times24}{1} = 24$ দিনে
   শর্টকার্ট: খ একা কাজটি করতে পারে $= \frac{8\times12}{12-8} = \frac{96}{4} = 24$ দিনে (উত্তর: গ. ২৪ দিনে)

3. একজন শ্রমিক ২০ দিনে একটি কাজের $\frac{4}{9}$ অংশ শেষ করতে পারে। একই হারে কাজ করলে সম্পূর্ণ কাজ শেষ করতে তার অতিরিক্ত আর কতদিন লাগবে?
   ক. ২০ দিন খ. ২৫ দিন গ. ৪৫ দিন ঘ. ৫ দিন

সমাধান: অবশিষ্ট কাজ $= 1 - \frac{4}{9} = \frac{9-4}{5} = \frac{5}{9}$ অংশ

$\frac{4}{9}$ অংশ কাজ করতে সময় প্রয়োজন 20 দিন

১ " " " " " $\frac{20}{\frac{4}{9}}$ "

$\frac{5}{9}$ " " " " " $20 \times \frac{9}{4} \times \frac{5}{9} = 25$ দিন (উত্তর: খ. ২৫ দিন)

4. 'ক' একা একটি কাজ ১২ দিনে করতে পারে এবং 'খ' একই কাজ একা ২৪ দিনে করতে পারে। তারা একত্রে ৪ দিন কাজ করার পর 'ক' চলে গেলে বাকি কাজ 'খ' একা কতদিনে শেষ করতে পারবে?

ক. ৮ দিনে খ. ১২ দিনে গ. ১৬ দিনে ঘ. ৪৮ দিনে

সমাধান: ক ১ দিনে শেষ করতে পারবে কাজের $\frac{1}{12}$ অংশ এবং খ ১ দিনে শেষ করতে পারবে কাজের $\frac{1}{24}$ অংশ

ক ও খ একত্রে একদিনে কাজ করে $\left(\frac{1}{12} + \frac{1}{24}\right) = \frac{2+1}{24} = \frac{3}{24} = \frac{1}{8}$ অংশ

ক ও খ একত্রে ৪ দিনে কাজ করে $= 4 \times \frac{1}{8} = \frac{1}{2}$ অংশ

$\therefore$ অবশিষ্ট কাজ $= \left(1 - \frac{1}{2}\right) = \frac{1}{2}$ অংশ

খ $\frac{1}{24}$ অংশ কাজ করে ১ দিনে

খ $\frac{1}{2}$ " " " $\frac{1}{\frac{1}{24}} \times \frac{1}{2} = \frac{24}{2} = 12$ দিনে (উত্তর: খ. ১২ দিনে)

5. Machines A and B, working together, take t minutes to complete a particular work. Machine A, working alone, takes 64 minutes more than t to complete the same work. Machine B, working alone, takes 25 minutes more than t to complete the same work. What is the ratio of the time taken by machine A to the time taken by machine B to complete this work?

A. 5:8 B. 8:5 C. 25:64 D. 25:39

Solution: When machine A is working alone, it takes 64 extra minutes. Why? Because there is work leftover after t minutes. The work that would have been done by machine B in t minutes is leftover and is done by machine A in 64 minutes.

Time taken by A : Time taken by B = 64: t ... ... (i)

Similarly, when machine B works alone, it takes 25 extra minutes to complete the work that machine A would have done in t minutes.

Time taken by A : Time taken by B = t: 25 ... ... (ii)

From (i) and (ii) above,

$\frac{64}{t} = \frac{t}{25}$

$\Rightarrow t^2 = 1600$

$\Rightarrow t = 40$

Time taken by machine A : Time taken by machine B = t: 25

$\Rightarrow$ 40: 25 = 8: 5 (Answer: B. 8: 5)

Practice Math

1. 10 cats caught 10 rats in 10 seconds. How many cats are required to catch 100 rats in 100 seconds?

[প্রাথমিক সহকারী শিক্ষক-১২, কর্ণফুলী গ্যাস ডিস্ট্রিবিউশন কোম্পানী লি. (সহকারী ব্যবস্থাপক) ২০২১]

A. 10 B. 20 C. 50 D. 100

2. For making a cupboard, it requires human labor three times the labor required to make a bench. Six carpentars can make 36 benches and 5 cupboards in 12 days. How many days will 10 carpenters to make 61 benches and 8 cupboards? [Combined Officer-08, RAKUB SO 11]

A. 23 days B. 32 daye C. 21 days D. 12 days E. None of these

3. A teacher has 3 hours to grade all the papers submitted by the 35 students in her class. She gets through the first 5 papers in 30 minutes. How much faster does she have to work to grade the remaining papers in the allotted time? [IBA BBA 15-16]

A. 10% B. 15% C. 20% D. 25% E. None of these

4. Courier charges for packages to a certain destination are tk. 65 for the first 250 grams and tk. 10 for each additional 100 grams or part there. What could be the weight in grams of a package for which the charge is tk. 155?

A. 1155 B. 1145 C. 1040 D. 1050 E. None of these

5. A contractor employed 30 men to do a piece of work in 38 days. After 25 days, he employed 5 men more and the work as finished one day earlier. How many days he would have been behind, if he had not employed additional men?

A. 1 B. $1\frac{1}{2}$ C. $1\frac{3}{4}$ D. $2\frac{1}{2}$ E. None of these

6. A takes twice as much time as B or thrice as much time as C to finish a piece of work. Working together, they can finish the work in 2 days. B can do the work alone in:

A. 6 days B. 4 days C. 8 days D. 12 days E. None of these

7. A is twice as good a work man as B and is therefore able to finish a job in 18s days less than B. In how many days they can finish the job working together? [IBA MBA Dec' 2017]

A. 8 B. 12 C. 15 D. 18 E. None of these

8. Working 11 hours/ day, 24 men and 33 women can complete the construction of a road in 78 days. The working capacity of 3 women equals to that of 1 man. Now, the authority decides that the road is to be constructed in 55 days by working 13 hours/day. If there are only 27 women present how many men will be needed? [IBA MBA June 2018]

A. 33 B. 45 C. 87 D. 99 E. None of these

9. 6 men and 5 women can do a work in 6 days and 4 men and 5 women can do the same work in 8 days. How many days will be required to complete the work by 8 men and 20 women? [NSI (Field Off.) 2021]

A. 2 B. 3 C. 4 D. 5

10. Three workers can do a job in 12 days. Two of the workers work twice as fast as the third. How long would it take one of the faster workers to do the job himself? [BB (AD) 2001]

A. 24 B. 30 C. 32 D. None

11. If machine A polishes x units in 12 minutes and machine B polishes 5x units in 40 minutes, in how many minutes will A and B, working together, polish 50x units? [BB AD 2018]

A. 240 B. 300 C. 350 D. 120

12. Company PQR has 3 machines. Machine A take 5 minutes to produce the item, machine B takes 12 minutes to produce 2 items and machine C takes 10 minutes to produce 1 item. If they run simultaneously how many hours will it take to produce 294 of the said item? [IBA MBA Dec' 2019)]

A. 10 B. 10.5 C. 11 D. 630 E. None of these

13. A can do a job in 15 hours and B in 10 hours. A started at 10 am, after some hours B joined with A. The work was completed in 9 hours. At what time B started the work? [IBA MBA, Dec' 2018]

A. 3 pm B. 6 pm C. 1 pm D. 2 pm E. Cannot be determined

14. A man can do a piece of work in 5 days, but with the help of his son, he can do it in 3 days. In what time can the son do it alone?

A. 4 days B. 6 days C. 7 days D. 8 days E. None of these

15. A female worker can do a job in 12 hours and a male worker can do the same job in 6 hours. If equal numbers of male and female members were deployed to do that job and the team completed the job in 2 hour, how many male worker were employed? [IBA MBA Dec' 2015]

A. 1 B. 2 C. 3 D. 4 E. None of these

16. A can complete a project in 20 days and B can complete the same project in 30 days. A & B start working on the project together and A quits 10 days before the project is expected to be completed. How many days in total will the project take to complete?

A. 16 B. 18 C. 23 D. 27 E. 24

17. A man can build a hut in 9 days; a woman can build the same hut in 12 days and a boy can build that hut in 18 days. After working together for 2 days the man left and the woman and the boy continued the work for 2 days. After that the woman left too and the boy finished the rest of the work. If the total wage for this work is BDT 7910, how much the boy should receive based on the number of days worked? [IBA MBA June 2018]

A. BDT 2260 B. BDT 3390 C. BDT 4520 D. BDT 5085 E. None of these

18. Three workers A, B, C working individually can completed a task in 30 days, 15 days and 10 days respectively. If A starts the task alone and B and C help A in every 2^{nd} and 3^{rd} day respectively, on which day will the task be completed? [IBA MBA June 2018]

A. 10 B. 12 C. 14 D. 15 E. None of these

19. Rony and Jony are working on an assignment. Rony takes 6 hours to type 32 page on a computer, while Jony takes 5 hours to type 40 pages. How much time will they take, working together on two different computers to type an assignment of 110 pages? [Karnafully Gas Ditribution Company Ltd. (AM) 2021]

A. 8 hour 25 minutes B. 8 hour 15 minutes C. 8 hour 13 minutes D. 7 hour 15 minutes

20. Bill and Ben can clean the garage together in 6 hours. If it takes Bill 10 hours working alone, how long will it take Ben working alone? [BB AD '21]

A. 11 hours B. 4 hours C. 16 hours D. 15 hours

21. A can do a work in 15 days and B in 20 days. If they worked on it for 4 days, then what fraction of the work is left? [Jamuna Bank (Officer) 14]

A. $\frac{1}{4}$ B. $\frac{1}{10}$ C. $\frac{7}{15}$ D. $\frac{8}{15}$

22. Rashid can do a piece of work in 8 days, which Tapu can finish in 12 days. If they work at it on alternate days with Rashid beginning, in how many days, the work will be finished?

A. $\frac{28}{3}$ B. $\frac{19}{2}$ C. $\frac{217}{24}$ D. $\frac{31}{3}$

23. When A and B work together, they receive their wages in the ratio 3: 5. If A alone can do the work in 20 days, in how much time will B do the work alone?

A. 12 days B. 15 days C. 24 days D. 30 days

24. Sadib can do a job in 2 hours. Tazul can do the same job in 3 hours. If they work together, how many hours will it take to do the job? [BB (Cash Officer) 2011]

A. $\frac{5}{3}$ B. 4 C. 6 D. $1\frac{1}{5}$

25. A can do a piece of work in 4 hour, B and C together can do it in 3 hours, while A and C together can do it in 2 hours. How long will B alone take to do it? [Jamuna Bank (PO) 2012]

A. 8 hours B. 10 hours C. 12 hours D. 24 hours

26. A, B, C together can do a piece of work in 10 days. All the three started working at it together and after 4 days, A left. Then, B and C together completed the work in 10 more days. In how many days can complete a work alone?

A. 25 B. 24 C. 23 D. 21

27. A can do a job in 24 day, B in 9 days and C in 12 days. B and C together start the work but leave after 3 days. How much time was taken by A to complete the remaining work?

A. 7 days B. 9 days C. 10 days D. 12 days

28. A can finish a work in 18 days and B can do the same work in 15 days. B worked for 10 days and left the job. In how many days, A alone can finish qthe remaining work?

A. 5 B. 6 C. 7 D. 8

Home Task Math

29. If machine A polishes x units in 12 minutes and machine B polishes 5x units in 40 minutes, in how many minutes will A and B, working together, polish 50x units? [BB AD 2021]

A. 240 B. 300 C. 350 D. 120

30. A computer takes 50 nanoseconds to do an addition. How many additions can it do in 1 second?

A. 2 billion B. 25 million C. 20 billion D. 35 million

31. 20 people can do a work in 12 days. If 10 people left the work after 8 days, how many days will the rest of the people take to complete the work?

A. 6 B. 8 C. 12 D. 10 E. None of these

32. A hunting lodge has enough fuel to keep 20 rooms heated for fourteen days. If the lodge decides to save fuel by turning off the heat in 5 unoccupied rooms, and each room requires the same amount of fuel to heat it, how many extra FULL days will the fuel supply last? [IBA MBA Dec' 2020]

A. 3 B. 4 C. 5 D. 18 E. 19

33. A short distance athlete has been 60 seconds to cover 100 meters. If he makes 30 steps in 9 seconds how many steps has he taken in that time?

A. 130 B. 170 C. 173 D. 188 E. None of these

34. A man's regular pay is taka 30 per hour up to 40 hours. Overtime is twice the payment for regular time. If he was paid tk. 1680, how many hours overtime did he work?

A. 8 B. 16 C. 6 D. 20 E. 28

35. The rent of a guest house was tk. 50 per day for first three days, tk. 100 per day for next 5 days and tk. 300 per day for other days. The registration fee in the beginning is tk. 50. If one has to pay tk. 1300, for how many days he availed of this facility?

A. 8 B. 10 C. 12 D. 15 E. 18

36. A company employs 15 persons working 44 hours a week. If 4 persons are ill, how many hours a week would the rest have to work to make up the work force lost?

A. 40 B. 50 C. 55 D. 60 E. 65

37. A group of workers promise to complete a piece of work in 10 days, but five of them do not report for work. If it took the remaining workers 12 days to complete the work, then the number of workers originally hired was-

A. 15 B. 20 C. 25 D. 30 E. 35

38. Siam needs m minutes to do a task. After he works for k minutes, what part of the task remain incomplete?

A. $\frac{k}{m}$ B. $\frac{m}{k}$ C. $\frac{m-k}{m}$ D. $\frac{m}{m-k}$ E. None of these

39. A conveyor belt delivers baggage at the rate of 3 tons in 5 minutes and a second conveyor belt delivers baggage at the rate of 1 ton in 2 minutes. How much time will it take to get 33 tons of baggage delivered using both the conveyor belts together?

A. 30 mins B. 25 min C. 45 min D. 35 min E. 21 min

40. A hostel has a food reserve for 500 people of 20 days. If 200 people left the hostel after 5 days, how many days will the food last? [আরডিএ বগুড়া (সহকারী পরিচালক) ২০২১]

A. 20 days B. 22 days C. 25 days D. 30 days

41. If 3 men or 6 boys can do a piece of work in 10 days, working 7 hours a day; how many day will it take to complete a piece of work twice as large with 6 men and 2 boys working together for 8 hours a day?

A. 6 B. 6.5 C. 7 D. 7.5 E. None of these

42. 4 men and 6 women can complete a work in 8 days, while 3 men and 7 women can complete it in 10 days. In how many days will 10 women complete it?

A. 40 days B. 36 days C. 32 days D. 34 days E. None of these

43. A contract to be completed in 46 days and 117 men were set to work, each working 8 hours a day. After 33 days, $\frac{4}{7}$ of the work is completed. How many additional men may be employed so that the work may be completed in time, each man now working 9 hours a day?

A. 80 B. 71 C. 61 D. 81 E. None of these

44. If 30 men renovate $\frac{1}{2}$ of room space in 120 days, how many days would 80 men require to renovate $\frac{1}{3}$ of the remaining room space. Assuming each person works at the same rate? [IBA MBA June 2018]

A. 15 B. 30 C. 60 D. 120 E. None of these

45. Babu can paint a house three times faster than Ali can paint. If working together, it takes Ali and Babu 24 hours to paint the house, then how many hours will it take Babu to paint the house alone?

A. 24 B. 38 C. 30 D. 32 E. None of these

46. Working independently, X takes 12 hours to finish a certain work. He finishes $\frac{2}{3}$ of the work. The rest is finished by Y whose rate is $\frac{1}{10}^{th}$ of x. In how many hours does y finish the work? [IBA MBA Dec'15]

A. 40 B. 50 C. 60 D. 70 E. None of these

47. A and B working together can finish a job in x days. If A works alone and completes the job, he will take $x + 4$ days. If B woks alone and completes the same job, he will take $x + 16$ days. What is x?

[IBA MBA June 2016]

A. 4 B. 6 C. 8 D. 10 E. None of these

48. 50 persons can do a work in 12 day's by working 8 hours a day. Working how many hours per day can 60 persons finish the work in 16 days? [BEPZA (Asst. Manager)-21]

A. 8 hours B. 6 hours C. 5 hours D. 4 hours

49. Three workers can do a job in 20 days. Two of the workers work twice as fast as the third. How long would it take one of the faster workers to do the job himself? [One Bank (PO) 2008]

A. 10 days B. 15 C. 20 D. 50

50. A company makes a certain product for 30 hours using three machines A, B and C. A makes 36 units per 6 hours, B makes 6 Units per 12 hours, C make 33 units per 12 hours. The company uses Machines B and C for the first 12 hours, then uses A and B for he next 6 hours and for the remaining of the time it uses A and C to make the product. What is the total amount of product made by this schedule?

[IBA MBA Dec' 2020]

A. 181 B. 183 C. 168 D. 175 E. None of these

51. Rakib can complete a task in 30 minutes and together with his brother Momin, he can complete the task in 20 minutes. How long would it take for Momin working alone to complete the task?

A. 30 minutes B. 40 minutes C. 50 minutes D. 60 minutes E. None of these

52. Asif can do a job in 15 hours, and Rassel can do the same job in 9 hours. If they start doing the job together at 6 am and Rassel stops working at 9 am, at what time will Asif finish the job?

A. 2 pm B. 4 pm C. 5 pm D. 6 pm E. None of these

53. Mukit can do a work in 8 days while his collegues Asad takes 12 days and Mithun takes 16 days to complete the same. Mukit and Asad started the work and after few days Asad left the work keeping it incomplete. Rest of the work was completed by Mukit and Mithun in 2 days. How long it took to complete the whole work?

A. 4 days B. 5 days C. 6 days D. 8 days E. 5.5 days

54. Faruk can complete a job in 12 hours, and Jamal can complete the same job in 8 hours. Faruk starts the job at 9 am and stops working at 3 pm. If Jamal starts working at 4 pm to complete the job, at what time is the job finished? [IBA MBA June 2012]

A. 6 pm B. 7 pm C. 8 pm D. 10 pm E. 12 pm

55. Kobita and Bobita can do a piece of work in 24 days. If Sunita works alone for the last 6 days, it is completed in 26 days. How long would Bobita take to do the work alone?

A. 20 days B. 36 days C. 72 days D. 24 days E. None of these

56. A, B and C can do a work in 5 days, 10 days and 15 days respectively. They started together to do the work but after 2 days A and B left. C did the remaining work in how many days? [Islamic Bank (PO) 10]

A. 1 B. 3 C. 4 D. 5

57. A can do a piece of work in 10 days, while B alone can do it in 15 days. They worked for 5 days and the rest work is done by C in 2 days. If they get tk. 4500 for the whole work, how much money will C get?

A. 2250 B. 1500 C. 750 D. 500

58. A and B can do a piece of work in 45 and 40 days respectively. They began the work together but A leaves after some days and B finished the remaining work in 23 days. After how many days did A leave?

A. $7\frac{5}{9}$ days B. 8 days C. 9 days D. $14\frac{2}{5}$ days

Written Math

1. A manufacturing company uses two machines A and B with different production capacities. Where working alone machine A can produce a production lot in 5 hours and machine B can produce the same lot in x hours. When the two machine operate simultaneously to fill the same production lot, it takes them 2 hours to complete the job. How many hours will the machine B take to produce the production lot alone? [BCB (Officer) '06, Janata Bank (IT Officer) '16, BSC Combined Exam (SO-3 Banks) '18]

2. Abir can do a piece of work in 80 days. He works for 10 days then Bashir alone finishes the rest of the work in 42 days. How much time would if take for the two of them together to complete the whole work? [BB (AD) 2006, 2017, Modhumoti Bank (PO) 2016, Bank Asia (MTO) 2017]

3. Working alone at their respective constant rates, A can complete a task in 'a' days and B in 'b' days. They take turns in doing the task with each working 2 days at a time. If A starts, they finish the task in exactly 10 days. If B starts, they take half a day more. How long does it take to complete the task if they both work together? [BSEC (AD) 2021]

4. P and Q can complete a work in 15 days and 10 days respectively. They started the work together and then Q left after 2 days. P alone completed the remaining work. How many days in total it took to finish the work?

5. A, B, and C can complete a piece of work in 16, 32, and 48 days, respectively. They started working together but C left after working 4 days and B left 2 days before the completion of the work. How many days it took in total to complete the work?

6. A, B and C started a job which they can complete in 2 days. B can do the job in 5 days and C can do it in 4 days. After working for 1 day, both B and C left. How long would it take A to complete the rest of the job? [Madhumoti Bank (PO) 2017]

7. A, B and C can do a piece of work in 24 days, 30 days & 40 days respectively. They began the work together but C left 4 days before the completion of the work. In how many days was the work completed?

8. A and B can do a piece of work in 15 days and 10 days respectively. Both work together for 3 days and then A leaves off. In how many days the work be completed?

9. Arif and Babu worked together to paint a house. Arif worked for 1 hour 45 minutes and Babu worked for 45 minues. Babu's hourly rate is double the rate of Asif's. If they together earned tk. 71.50, what is hourly rate of Arif in taka?

10. If Arif works alone he will take 20 more hours to complete a task than if he works with Babu to complete the task. If Babu work alone, he will take 5 more hours to complete the task than if he works with Arif to complete the task. What is the ratio of the time taken by Arif to time taken by Babu if each of them works alone to complete the task?