

Bank Written Math Preparation

Lec. 08

Time & Work,
Pipe & Cistern

Learn Today, Lead Tomorrow

FOR ADMISSION:
01713289149

CLASS WORK

1. 50 men can do a piece of work in 12 days working 6 hours a day. How many hours a day would 60 men have to work in order to do another piece of work twice as great in 16 days?

Ans: 7.5 hours

2. If 18 pumps can raise 2170 tones of water in 10 days working 7 hours a day, in how many days will 16 pumps raise 1736 tones of water, working 9 hours a day?

Ans: 7 days

3. One robot, working independently at a constant rate, can assemble a doghouse in 12 minutes. What's the maximum number of complete doghouses can be assembled by 10 such robots, each working on separate doghouse at the same rate for 2.5 hours?

Ans: 125

4. A project manager hired 16 men to complete a project in 38 days. However, after 30 days, he realized that only $\frac{5}{9}$ of the work is completed. How many more men does he need to hire to complete the project on time?

Ans: 32

5. A contract is 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 have to be employed so that the work may be completed in time, each man now working 9 hours a day? [Probashi Kallyan Bank: SO – 2014]

Ans: 81

6. Mr. X signed a contract for building a road of 1920 meters long within 120 days. He employed 160 workers for this task. But after 24 days he found that only $\frac{1}{8}$ of the task has been finished. If Mr. X wants to finish the road in time how many additional workers he has to employ? [BADC (AO) -2017]

Ans: 120

7. If 9 engines consume 24 metric tons of coal, when each is working 8 hours a day, how much coal will be required for 8 engines, each running 13 hours a day, it being given that 3 engines of former type consume as much as 4 engines of latter type? [BB – Officer (Cash) – 2017]

Ans: 26

8. 50 daily workers can complete a dam project in 40 days. If 30 of them work daily and the rest work in every alternative day, how many more days will be required to complete the project?[BB-AD - 2018]

Ans: 10 days

9. A contractor employs 200 men to build a bund. They finish $\frac{5}{6}$ of the work in 10 weeks. Then rain sets in and not only does the work remain suspended for 4 weeks but also half of the work already done is washed away. After the rain, when the work is resumed, only 140 men turn up. The total time in which the contractor is able to complete the work, assuming that there are no further disruptions in the schedule is –

Ans: 24 weeks

10. If 20 men or 24 women or 40 boys can do a job in 12 days working for 8 hours a day, how many men working with 6 women and 2 boys take to do a job four times as big working for 5 hours a day for 12 days? [IBBL – 2012]

Ans: 122

11. 2 men and 3 boys can do a piece of work in 10 days, while 3 men and 2 boys can do same work in 8 days. In how many days can 2 men and 1 boy do the work?

[RAKUB: SO-2016; JBL AEO-2015; PBL-2014]

Ans: 12.5 days

12. 24 men can complete a work in 16 days. 32 women can complete the same work in 24 days. 16 men and 16 women started working and worked for 12 days. How many more men are to be added to complete the remaining work in 2 days? [PBL Senior Officer/Officer-2017]

Ans: 24

13. A, B and C do a job alone in 20, 30 and 60 days respectively. In how many days can A do the job if he is assisted by B and C? [BB: AD – 2013]

Ans: 10 days

14. Abir can do a piece of work in 80 days. He works for 10 days and then Basher alone finishes the rest of the work in 42 days. How much time would it take for the two of them together to complete the whole work? [BB: AD – 2006]

Ans: 30 days

15. A and B can do a piece of work in 30 days, while B and C can do the same work in 24 days, and C and A in 20 days. They all work together for 10 days when B and C leave. How many days more will A take to finish the work? [Combined 3 Banks – Officer (Cash) – 2018]

Ans: 18 days

16. A can do a piece of work in 120 days and B can do it in 150 days. They work together for 20 days then B leaves and A continues the work alone. 12 days after, C joins A and the work is completed in 48 days more. In how many days can C do it if he works alone? [BSC 3 Banks (SO) – 2018]

Ans: 240 days

17. Rafiq, Shafiq, and Arif can alone complete a project in 10 days, 20 days, and 10 days respectively. Rafiq started working on the project alone. Shafiq joined the project after 2 days. After working together for 4 days both Rafiq and Shafiq left the project and Arif got in. How many days it took to complete the entire project? [BKB - Officer - 2017]

Ans: 8 days

18. A can do a piece of work in 40 days B can do the same piece of work in 60 days. A and B started the work together in the first 15 days A worked with 50% of his efficiency, in the next 15 days B worked with 50% of his efficiency. Now in how many days does the remaining work will be completed if both of them work with their full efficiencies?

Ans: 1.5 days

19. A alone can do a piece of work in 30 days, while B alone can do it in 15 days and C alone can do it in 10 days. If in every second day B and in every third day C help A in doing the work, how many days will be required to complete the whole work? [Agrani Bank - (SO) - 2017]

Ans: 11 days

20. Abdul alone can finish a work in 6 days and Bakul alone in 8 days. Abdul and Bakul undertook to do it for Tk.3200. With the help of Chinu, they completed the work in 3 days. If the money is to be distributed among them according to the work they have done, how much is to be paid to Chinu?

[NBL-2012, BASIC Bank-2014, SBAC MTO-2014]

Ans: 400

21. A tank can be filled by a tap in 20 minutes and by another tap in 60 minutes. Both the taps are kept open for 10 minutes and then the first tap is shut off. After this, the tank will be completely filled in what time?

[PKB (SEO) – 2018 (AUST); BASIC Bank (AO) – 2009]

Ans: 20 mins

22. Working together pipe P, Q and T can fill a tank in 5 hours. Working together P and Q can fill it in 7 hours. Find in how many hours T can fill it? [Basic Bank (AM) – 2018]

Ans: 17.5 hrs

23. Two pipes A and B can fill a tank in 24 and 32 min respectively. If both the pipes are opened together, after how much time pipe B should be closed so that the tank is full in 18 min?

[Sonal Bank - SO (FF) – 2019]

Ans: 8 mins

24. Two pipes A and B can fill a tank in 20 hours and 30 hours respectively. Both the pipes are opened to fill the tank but when the tank is $\frac{1}{3}$ full, a leak develops in the tank through which $\frac{1}{3}$ water supplied by both the pipes goes out. How much time will the tank take to be full?

[Combined 8 Banks & FI's (SO) – 2019]

Ans: 16 hrs

25. Two pipes can fill a tank in 20 and 24 minutes respectively and a waste pipe can empty 3 gallons per minute. All the three pipes working together can fill the tank in 15 minutes. The capacity of the tank is?

[DBBL – 2012]

Ans: 120 G

26. A tank is fitted with 8 pipes, some of them that fill the tank and others that are waste pipe meant to empty the tank. Each of the pipes that fill the tank can fill it in 8 hours, while each of those that empty the tank can empty it in 6 hours. If all the pipes are kept open when the tank is full, it will take exactly 6 hours for the tank to empty. How many of these are fill pipes? [MTB – 2014]

Ans: 4

27. A cistern can be filled by filling separately in 12 and 16 minutes separately. Both the pipes are opened together for a certain time but being clogged, only $\frac{7}{8}$ of the full quantity of water flows through the former and only $\frac{5}{6}$ through the latter pipe. The obstruction, however, being suddenly removed, the cistern is filled in 3 minutes from that moment. How long was it before the full flow began?

Ans: 4.5 minutes

28. Two taps A and B can fill a tank in 32 minutes and 40 minutes respectively, while a third drain pipe C can empty it in 48 minutes. The taps are opened together, but being jammed, the first tap has $\frac{4}{5}$ th of water flowing and through the second tap only $\frac{5}{6}$ of full quantity of the water flows and drain pipe works with 90% of its efficiency. After some time, the whole problem is removed, then the cistern takes overall 36 minutes to be filled completely, how long the problem remained-

Ans: 33 minutes

QUESTIONS FOR SELF-PRACTICE

29. Six men can complete a work in 5 days if they work for 8 hours per day. How many days will 4 men take to do the same work if they work only 5 hours per day?

Ans: 12 days

30. 64 persons can dig a trench 50 m long 2 m wide and 2 m deep in 5 days working 12 hours daily. In how many days, working 8 hours daily will 80 persons dig another trench 75 m long, 4 m wide and 3 m deep?

Ans: 27 days

31. A garrison of 3300 men had provisions for 32 days, when given at the rate of 850 gms per head. At the end of 7 days a re-enforcement arrives and it was found that the provisions will last 17 days more, when given at the rate of 825 gms per head. What is the strength of the reinforcement?

Ans: 1700

32. A contract is to be completed in 56 days and 104 men were set to work, each working 8 hours a day. After 30 days, $\frac{2}{5}$ of the work is completed. How many additional men are to be employed, so that the work may be completed in time if each man works 9 hours a day? [AI-Arafah – 2011]

Ans: 56

33. An engineer undertake 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 number of extra men he must employ to finish the work in time. [Combined 8 Banks & FT's (SO)]

Ans: 68

34. A contractor undertakes to do a piece of work in 40 days. He engages 100 men at the beginning and 100 more after 35 days and completes the work in stipulated time. If he had not engaged the additional men, how many days behind schedule would it be finished? [Janata Bank – EO – 2017]

Ans: 36

35. A contractor undertakes to complete a work in 130 days. He employs 150 men for 25 days and they complete $\frac{1}{4}$ of the work. He then reduces the number of men to 100, who work for 60 days, after which there are 10 days holidays. How many men must be employed for the remaining period to finish the work?

Ans: 50

36. 12 men or 18 women or 24 boys can complete a work in 15 days. 10 men and 20 boys started the work and after five days six women joined them. In how many days can the remaining work be completed?

Ans: 3.33 days

37. 12 men can complete a piece of work in 36 days. 18 women can complete the same piece of work in 60 days. 8 men and 20 women work together for 20 days. If only women were to complete the remaining work in 4 days, how many women would be required? [Sonali Bank - Officer (FF) – 2019]

Ans: 70

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

Ans: 10.44 days

39. A alone can reap a certain field in 15 days and B in 12 days. If A begins alone and after a certain interval B joins him, the field is reaped in 7.5 days. How long did A and B work together? [PKB (SEO) – 2018]

Ans: 6 days

40. A can do a piece of work in 16 days. Due to some problem, his efficiency reduces to 40%. B's efficiency also reduces to two-third his original efficiency. Now they can finish the work in 20 days. Then in how many days can A and B together finish the work at 100% efficiency?

Ans: 10 days

41. If A and B work together, they will complete a job in 7.5 days. However, if A works alone and completes half the job and then B takes over and completes the remaining half alone, they will be able to complete the job in 20 days. How long will B alone take to do the job if A is more efficient than B?

Ans: 30 days

42. A and B can complete a work in 15 days and 10 days respectively. They started doing the work together but after 2 days B had to leave and A alone completed the remaining work. How many days did it take to complete the whole work? [Sonali Bank Officer-2018]

Ans: 12 days

43. Machine A, working alone at its constant rate, produces x pounds of peanut butter in 12 minutes. Machine B, working alone at its constant rate, produces x pounds of peanut butter in 18 minutes. How many minutes will it take machines A and B, working simultaneously at their respective constant rates, to produce x pounds of peanut butter? [Sonali Bank (Officer-Cash) – 2019]

Ans: 7.2

44. A can do a piece of work in 10 days, while B alone can do it in 15 days. They worked together for 5 days and the rest of the work was done by C in 2 days. If they get Tk.4500 for the whole work, how should they divide the money? [RAKUB: Off-2016; BB-AD: (FF) – 2015; BASIC Bank – 2014]

Ans: 750

45. Three pipes A, B and C can fill a tank in 6 hours. After working all together for 2 hours, C is closed and A and B can fill the remaining part in 7 hours. How many hours will C alone take to fill the tank? [Combined 2 Banks – Officer – 2018]

Ans: 14 hours

46. 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?

Ans: 18 minutes

47. A tank has two outlets A and B, which together take 6 hr to empty a full tank when they are opened simultaneously. The tank was initially half-full and both the outlets were opened. After an hour, an inlet pipe 'X' was also opened. If the inlet alone can fill an empty tank in 4 hr, how much time will it now take to fill the tank completely? (in hours)

Ans: 8 hours

48. A and B can fill the tank in 60 min and 90 min. There is a leak at $\frac{3}{4}$ th of the height. If leak is opened alone, it takes 36 min to empty till $\frac{3}{4}$ th the height. Find the time taken to fill the tank if all of the taps and the leak are opened simultaneously? [GMAT - CLUB]

Ans: 39 minutes