Word Problems Based on Mathematics

Olympiad Comprehensive Book

QUESTIONS

1. In an examination, Vinod secured 70% of the maximum marks, which is 187 marks more than the pass marks. If the passing marks are 36%, then the marks secured by Vinod in the examination, is _____

(a) 180 (b) 272

(c) 385 (d) 478

(e) None of the

2. The population of a city is increased by 20% at the end of every year. Its population will be doubled in _____.

(a) 2 years (b) 3 years

(c) 4 years (d) 5 years

(e) None of these

3. 21 binders can bind 1400 books in 20 days. How many binders will be required to bind 880 books in 22 days?

(a) 12 (b) 9

(c) 49 (d) 28

(e) None of these

4. A man takes 8 hours 25 minutes in walking to a certain place and riding back. He would have taken 3 hours less by riding both ways. What would be the time he would take to walk both ways?

(a) 11 hr 25 minutes (b) 9 hr 35 minutes

(c) 8 hr 20 minutes (d) 12 hr 20 minutes

(e) None of these

5. The price of an article is increased by 25%. By what percentage its consumption be reduced so that the expenditure on it reduce by 15%

(a) 15% (b) 25%

(c) 32% (d) 28%

(e) None of these

6. Anil, Vinod and Prakash divide a certain amount among themselves. The average of the amounts with them is Rs. 960. Anil's share is $18\frac{2}{11}\%$ more than that of Vinod and $19\frac{13}{18}\%$ less than that of Prakash. Find Prakash's share (in Rs.)

(a) Rs. 880
(b) Rs. 970
(c) Rs. 1080
(d) Rs. 11260
(e) None of these

7. Arjun spends 70% of his income. If his income is by 30% and also his expenditure is increased by 45%, then percentage of his is savings is _____

(a) Increased by 95%
(b) Increased by 15%
(c) Decreased by 5%
(d) Decreased by 95%
(e) None of these

8. The list price of a LED TV is Rs. 27000. The shopkeeper sold it by allowing a 5% discount and charged 6% sales tax on it. By mistake, while calculating the bill, he considered 4% discount and 5% sales tax. As a result his customer has paid _____.

(a) Rs. 27 more
(b) Rs. 27 less
(c) Rs. 230 more
(d) Rs. 230 less
(e) None of these

9. The ratio of the present ages of Mr, Abhimanyu and Mr. Yuvraj is 4: 3. Which of the following cannot be the ratio of their ages 4 years ago?

(a) 3 : 2
(b) 2 : 1
(c) 7 : 8
(d) 10 : 7
(e) None of these

10. If x + y varies directly with x - y, then which one of the following is true?

(a) x and y vary directly
(b) $x^2 + y^2$ and $x^2 - y^2$ vary directly
(c) Both (a) and (b)
(d) $x^2 + y^2$ and $x^2 - y^2$ vary indirectly
(e) None of these

11. A certain number of men can complete a job in 40 days. Had there been 5 more men, number of days required to finish the job in 60 days.

(a) 10 men
(b) 15 men
(c) 20 men
(d) 25 men
(e) None of these

12. 34 men can complete $\frac{2}{5}$th of a work in 7 days. How many additional men are required to complete the remaining work in another 7 days?

(a) 13 men
(b) 15 men
(c) 17 men
(d) 19 men
(e) None of these

13. Anubhav can complete a job in 8 days working 7 hours a day and Vishal can complete the same work in 7 days working 6 hours a day. If both of them start on the same job together working 8 hours a days, then how many days are required to finish the job?

(a) 2 days
(b) 3 days
(c) 4 days
(d) 5 days
(e) None of these

14. Tom is thrice as good as workman as John and therefore is able to finish a job in 60 days less than John. Working together, how many days will be required to complete the job?

(a) 45 days
(b) 22.5 days
(c) 67.5 days
(d) Cannot be calculated
(e) None of these

15. Shatabdi Express has a capacity of 500 seats of which 10% is in the Executive Class, rest being Chair Car. During one journey the train was booked to 85% of its capacity. If Executive Class was booked to 96% of its capacity, how many Chair Car seats were empty during that journey?

(a) 75
(b) 73
(c) 71
(d) 79
(e) None of these

16. Pipe A can fill a tank in 20 minutes and pipe B can fill the tank in 50 minutes. Both the pipes can fill at the rate of 14 litres per second. The capacity of the tank (in litres) is _____

(a) 10000 l
(b) 1320 l
(c) 12000 l
(d) 5600 l
(e) None of these

17. Find the ratio in which two milk solutions of milk to water ratio 1:3 and 1:5 should be mixed to get milk to water ratio of 1:4.

(a) 1 : 1
(b) 3 : 5
(c) 2 : 3
(d) 3 : 4
(e) None of these

18. Amit start his journey from Delhi to Jaipur at a speed of 50km/hr. After travelling certain distance, he realized that he has travelled only 40 % of the distance and he has already consumed half of the permissible time. At what speed, he should travel the remaining distance in order to reach his destination in permissible time.

(a) 75 km/ hr
(b) 80 km/ hr
(c) 65 km/ hr
(d) 72 km/ hr
(e) None of these

19. 4 men and 10 women were put on a work. They completed $\frac{1}{3}$rd of the work in 4 days. After this 2 men and 2 women were increased. They completed $\frac{2}{9}$th more work in 2 days. If the remaining work is to be completed in 3 days, then how many more women must be increased?

(a) 22
(b) 30
(c) 8
(d) 18
(e) None of these

20. Two taps A and B can fill a tank in 12 hours and 8 hours respectively. If they are opened on alternate hours and if pipe B is opened first then in how many hours tank will be full?

(a) $9\frac{3}{4}$ hours
(b) $9\frac{1}{2}$ hours
(c) $10\frac{1}{4}$ hours
(d) 9 hours
(e) None of these

21. A contractor undertakes to do a piece of work in 36 days and employs 15 men to work 9 hours a day, but after 24 days, he finds that only $\frac{3}{5}$th of the work is finished. He then employ 3 more men For how many hours a day should all the men now work together to finish the work in time.

(a) 9 hours
(b) 10 hours
(c) 11 hours
(d) $9\frac{1}{2}$
(e) None of these

22. There are three taps to fill a tank whose diameters are 1 cm, $1\frac{1}{3}$ cm and 2 cm. The tap having the biggest diameter can fill the tank in 61 minutes. If all the three taps are opened together then in how many minutes the tank will be full? It is given that the flow of water in each tap is directly, proportional to the square of the diameter,

(a) 20 minutes
(b) 36 minutes
(c) 18 minutes
(d) 38 minutes
(e) None of these

23. A boat in the direction of flow covers a distance of 60 km in 4 hours. If speed of the boat is twice the speed of flow then how much distance will it cover in 2 hours opposite to the flow?

(a) 8 km
(b) 10 km
(c) 12 km
(d) 9 km
(e) None of these

24. 16 men complete a work in 12 days. They worked for 4 days. To finish the remaining work in 4 days, how many more men should join in?

(a) 16
(b) 30
(c) 12
(d) 12
(e) None of these

25. 4 boys and 6 women can do a work in 4 days while 2 boys and 4 women can do it in 7 days. In how many days 3 boys and 1 woman can do the same work?

(a) 10 days
(b) 12 days
(c) 13 days
(d) 8 days
(e) None of these

26. Ram's income is 20% more than Sunil. How much percent is Sunil's income less than Ram's?

(a) $8\frac{2}{3}\%$
(b) $16\frac{2}{3}\%$
(c) 20 %
(d) 80 %
(e) None of these

27. A person purchased an article and sold it at a loss of 10 %. If he had brought it for 20 % less and sold it for Rs. 55 more, he would have made a profit of 40 %. The cost price of the article is _____

(a) Rs. 285
(b) Rs. 240
(c) Rs. 225
(d) Rs. 250
(e) None of these

28. The price of refined oil is raised by 10%. Find out by how much percent a housewife must reduce her consumption of oil so as not to increase her expenditure?

(a) $7\frac{1}{11}\%$ (b) $9\frac{1}{11}\%$

(c) $3\frac{1}{8}\%$ (d) $7\frac{1}{8}\%$

(e) None of these

29. A man covered a distance of 3990 km partly by air, partly by sea and remaining by land. The time spent in air, on sea and on land is in the ratio 1: 16: 2 and the ratio of average speeds is 20: 1: 3 respectively. If total average speed is 42 km/hr, then the distance covered by sea is _____

(a) 1602 kms (b) 1520 kms

(c) 1620 kms (d) 1500 kms

(e) None of these

30. P is four times as fast as Q and Q is six times as fast as R. If a certain distance is covered by Q in 28 minutes, then the time taken by C to cover the same distance is _____

(a) 2 : 48 hrs (b) 2 : 28 hrs

(c) 2 : 50 hrs (d) 2 : 55 hrs

(e) None of these

31. Two men start together to walk to a certain destination, one at 3.75 km an hour and another at 3 km an hour. The former arrives half an hour the latter. The distance is _____

(a) 7.5 km (b) 8 km

(c) 8.5 km (d) 7 km

(e) None of these

32. A thief steals a car at 1: 30 pm and drives it at 40 km an hour. The theft is discovered at 2 pm and owner sets off in another car at 50 km an hour. He will overtake the thief at _____

(a) 3 : 00 pm (b) 3 : 30 pm

(c) 4 : 00 pm (d) 5 : 00 pm

(e) None of these

33. In what proportion water be mixed with pure milk in order to make a profit of 20 % by selling it at cost price?

(a) 2 : 3 (b) 1 : 5

(c) 3 : 4 (d) 4 : 3

(e) None of these

34. The cost price of 15 articles is same to the selling price of 10 articles. So, the percent is _____

(a) 50% (b) 30%

(c) 25% (d) 100%

(e) None of these

35. 12 men alone can complete a work in 6 days, whereas 10 men and 21 women together take 3 days to complete the same piece of work. In how many days can 12 women alone complete the piece of work?

(a) 9 (b) 10

(c) 11 (d) 12

(e) None of these

36. From a vessel containing 100 l of milk, 10 l are drawn out and equal amount of water is added. From the mixture, 10 l is again drawn out and same quantity of water is added. What is the final ratio of milk and water?

(a) 90 : 10 (b) 80 : 20

(c) 81 : 19 (d) 91 : 9

(e) None of these

37. The marks of 3 students Ravi, Deepu and Vineet are in the ratio 10:12:15. If the maximum marks of the test paper are 100, then the marks of Deepu cannot be in the range of _____

(a) 70 – 80 (b) 60 – 70

(c) 80 – 90 (d) 40 – 50

(e) None of these

38. Men, women and children are employed to do a work in proportion of 3: 2: 1 and their wages are 5: 3: 2. When 90 men are employed, total daily wages of all amounts to Rs. 10,350. Find the daily wage of a man.

(a) Rs. 75 (b) Rs. 115

(c) Rs. 95 (d) Rs. 100

(e) None of these

39. For every set of 19 kites sold, a vendor gives 1 kite extra, free of cost. In order to give a discount of 10 % the number of extra kites he should give in a sale of 27 kites to the nearest integer is _____

(a) 5 (b) 3

(c) 4 (d) 6

(e) None of these

40. A container has 60 litres of milk. From this container 6 litre of milk was taken out and replaced by water. The process was further repeated twice. The volume of milk in the container after that is _____

(a) 38.52 l
(b) 43 74 l
(c) 42.68 l
(d) 39.85 l
(e) None of these

ANSWER - KEY				
1. (C)	**2.** (C)	**3.** (B)	**4.** (A)	**5.** (C)
6. (C)	**7.** (C)	**8.** (A)	**9.** (C)	**10.** (C)
11. (A)	**12.** (C)	**13.** (B)	**14.** (B)	**15.** (B)
16. (C)	**17.** (C)	**18.** (A)	**19.** (C)	**20.** (B)
21. (B)	**22.** (B)	**23.** (B)	**24.** (A)	**25.** (D)
26. (B)	**27.** (D)	**28.** (B)	**29.** (B)	**30.** (A)
31. (A)	**32.** (C)	**33.** (B)	**34.** (A)	**35.** (A)
36. (C)	**37.** (C)	**38.** (A)	**39.** (B)	**40.** (B)