Free Arithmetic Conceptual Question With Video Solution

CAT Content By Udit Sir

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- These are specially Selected Arithmetic Questions for CAT/XAT/SNAP/IIFT and other management entrace exams.

- After Some Questions video solution Link Is given in The sheet, follow that Link for Best Approach Solution.

- Video Solution For All these Questions are covered in 20 sessions

- You can watch the video solution in Unacademy App.

01) The incomes of Ram and Shyam are in the ratio 5: 6 and their expenditures are in the ratio 7: 9 .If they save Rs.4000 and Rs.3000 respectively. What is the income of B?
(a) 30000
(b) 24000
(c) 18000
(d) None of these

02) One year ago the ratio between Laxman's and Gopal's salary was 3: 4 . The individual ratios between their last year's and this year's salaries are 4: 5 and 2: 3 respectively. At present the total of their salary is Rs. 4160 .The salary of Gopal's now, is
(a) 1600
(b) 2560
(c) 2480
(d) None of these

03) The sum of the squares of three numbers is 532 and the ratio of the first to the second and also of the second to the third is 3: 2 .What is the second number?
(a) 8
(b) 10
(c) 12
(d) 14

04) A heart is broken is number of feelings 4: 3: 2: 1 . The cost of heart is directly proportional to the square of number of feelings. There is loss of Rs. 7000 on broken heart. Find the initial cost of the heart?
(a) 5000
(b) 10000
(c) 1000
(d) None of these

05) The ratio of the first and second class train fares between two stations is 3: 1 and that of the numbers of passengers travelling between the two stations by first and second classes is 1: 50 .If on a particular day, Rs 2650 is collected from passengers travelling between the two stations then the amount collected from the second class passengers is
(a) 2400   (b) 2000
(c) 2500   (d) None of these

06) A stall sells popcorn and chips in packets of three sizes: large, super, and jumbo. The numbers of large, super, and jumbo packets in its stock are in the ratio 7: 17: 16 for popcorn and 6: 15: 14 for chips. If the total number of popcorn packets in its stock is the same as that of chips packets, then the numbers of jumbo popcorn packets and jumbo chips packets are in the ratio :- :   [CAT2017]
(a) 1: 1   (b) 8: 7
(c) 5: 4   (d) None of these

07) The ratio of the incomes of A and B is 2 : 3 and that of their expenditure is 1 : 2. If 90% of B's expenditure is equal to the income of A, then what is the ratio of the savings of A and B?
(a) 1 : 1
(b) 9 : 8
(c) 8 : 7
(d) 3 : 2

08) The speed of the railway engine is 42 kmph when no compartment is attached, and the reduction in speed is directly proportional to the square root of the number of compartments attached. If the speed of the train carried by this engine is 24 kmph when 9 compartments are attached , the maximum number of compartments that can be carried by the engine is   [CAT 99]
A) 49   B) 48   C) 46   D) 47

09) A is 20% more than B, B is 25% more than C, C is 60% less than D and D is 20% more than E. Based on the above information, which of the following is true?
(a) D is 60% less than B.
(b) E is 28% more than A.
(c) A is 40% less than D.
(d) D. C is 24% less than A.

10) A bag contains three types of coins. One rupee-coins. 50 paise -coins and 25 paise coins total 175 coins. If the total value of the coins of each kind be the same, the total amount in the bag is:
(a) 75
(b) 126
(c) 105
(d) 135

Session Details	Q.No _ to _ from	Link
Session 1	Q.no. 1 - 10	https://unacademy.com/class/arithmetic-marathon-for-cat2020-session-1/QQNXN82Q

11) Nitish purchased 6 Black and 'x' white balls. The price of Black ball is $\frac{5}{2}$ of the price the white ball. At the time of making the bill the clerk made a mistake and interchange the number of balls, due to this the bill amount increased by 45%. Find 'x'.

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12) Forty percent of the employees of a certain company are men, and 75% of the men earn more than Rs. 25000 per year. If 45% of the company's employees earn more than Rs. 25,000 per year, what fraction of the women employees by the company earn Rs. 25,000 per year or less?
[CAT99]

(a) $\frac{2}{11}$

(b) $\frac{1}{4}$

(c) $\frac{10}{17}$

(d) NOT

13) A report consists of 20 sheets each of 55 lines and each such line consist of 65 characters. This report is reduced onto sheets each of 65 lines such that each line consists of 70 characters. The percentage reduction in number of sheets is closer to

A. 20%
B. 5%
C. 30%
D. 35%
E. None of these

14) In a city 45% of the men are married and 25% of women are married. Considering that nobody is married more than once. What percent of population is married?

15) Every month a man consumes 25 kg rice and 9 kg wheat. The price of rice is 20% of the price of wheat and thus he spends total Rs. 350 on the rice and wheat per month. If the price of wheat is increased by 20% then what is the percentage reduction of rice consumption for the same expenditure of Rs. 350? Given that the price of rice and consumption of wheat is constant?

16) A pharma company receives 6 lakhs in royalties on the first 40 lakhs of sales of one of its patented products. On every further 1 lakh of sales of the product, it receives 10,000 in royalties. Two of the company's regular client companies sold that product had sales worth 50 lakhs and 60 lakhs respectively. The royalty paid by the first client as a percentage of its sales and that paid second client as a percentage of its sales differ by _____percentage points.

17) Three candidates A, B and C contest an election from a constituency. A and B together got 50% more votes than C. The vote share of A and C together is 30 percentage points more than that of B. Who won the election?

(a) A

(b) B
(c) C
(d) Cannot be determined

Session 2	Q.no. 11 - 17	https://unacademy.com/class/arithmetic-marathon-for-cat2020-session-2/8G1IW0KK

18) Due to Covid-19 Spread, the price of an item decreased by a certain percentage points and the sales of the item increased by 10%. The sales revenue earned on the item decreased by 23%. By what percentage points did the price of the item decreases?

19) A man spends 75% of his income. If his income is increased by 20% and expenditure is increased by 10%. Find the percentage change in his savings.

20) A dealer offers a cash discount of 20% and still makes a profit of 20%, when he further allows 16 articles to a dozen to a particular sticky bargainer. How much per cent above the cost price were his wares listed?
(a) 100%   (b) 50%   (c) 75%   (d) $66\frac{2}{3}$ %

21) Andrew sells his articles at a certain profit percentage. If he sells his articles at 1/3 of his actual selling price, then he incurs a loss of 40%. What is his actual profit percentage?
(a) 20%
(b) 16.66%
(c) 25%
(d) Data insufficient

22) Due to reduction of 25% in price of lemon a customer can purchase 4 lemon more for Rs 16. What is original price of a lemon?
(a) 1
(b) 1.5
(c) 1.33
(d) 1.6

23) A shopkeeper marks his goods at Rs 600 and allows a discount of 25%. If he still gains 12.5% profit, then the cost price of articles is:
(a) 440
(b) 400
(c) 480
(d) 520

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24) A vendor buys oranges @ Rs 2 for 3 oranges and sells them at a rupee each. To make a profit of Rs 15, he must sell :
(a) 30 oranges
(b) 40 oranges
(c) 45 oranges
(d) None of these

25) A man sells his good at a 20% profit, Had he purchase it for Rs 600 less and sold it for Rs 400 less then he would gain 10% more profit. Find the initial cost price.

Session 3	Q.no. 18 - 25	https://unacademy.com/class/arithmetic-marathon-for-cat2020-session-3/L7YWNVYJ

26) 5/9 part of the population in a Wuhan city are females. If 50% of the males are married, if total population of the Wuhan city is 795240. then percentage of married population is :-
(a) $44\frac{4}{9}\%$ (b) $40\frac{2}{3}\%$
(c) 40% (d) none of these

27) In a certain season, the Indian Crickey Team had won 30% of the first 30 matches they played. If the team wanted an overall success rate of 70%. Find the minimum number of matches that should be played to achieve the target.

28) A, B, C , D and E are five positive integers satisfying A= 3B = 4C and 2B = 5D = 12E. Which of the following pairs contains a number that can never be an integer?

29) A is 40% less than B, and C is 40% of the sum of A and B. The difference between A and B is what percentage of C?
(a) 60.2%   (b) 64%   (c) 62.5%   (D)60%

30) The sum of cost prices of two articles is Rs 500. One of them was sold at a profit of 20% and another at a loss of 20%. Besides if the selling price of both the articles were same. Find the amount of overall loss.

31) I bought 5 pens, 7 pencils and 4 erasers. Rajan bought 6 pens, 8 erasers and 14 pencils for an amount which was half more than what I had paid. What percent of the total paid by one was paid for the pens?
(1996)

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(a) 37.5%   (b) 62.5%   (c) 50%   (d) None of these

32) The price of a Maruti Car rises by 30% while the sales of the car come down by 20%. What is the per cent change in the total revenue?   (1996)

(a) – 4   (b) – 2   (c) + 4   (d) + 2

33) A company allow 7% commission on total sales to the salesman. But if the salesman is appointed on a fix salary of Rs 3000 plus 4% commission on the sales over Rs 10,000, then salesman receives Rs 800 more on the second condition. Find the total sales.

34) Chintu used to get a commission of 12% on his total sales. A new policy is introduced and he now gets a fixed sum of Rs 4680 and 8% commission on the total sales made in excess of Rs 16000. The salesman's total sales for the previous month exceeded Rs 16000. His total sales for this month was the same as that for last month and his total income for this month is Rs 1000 more than that for last month. Find his total sales (in Rs) this month.

(a) 40000
(b) 50000
(c) 60000
(d) 70000
(e) 80000

Session 4	Q.no. 26 - 34	https://unacademy.com/class/arithmetic-marathon-for-cat2020-session-4/NGEAW0SD

35) Chintu salary before he got an increment was 20% of the total income of his family. His increment was one-fourth of his salary, After an increment what percentage of the total income of his family is his new salary?

(a) 20%
(b) 25%
(c) 16.66%
(d) None of these

36) Ramu's salary before he got an increment was Equal to the total savings of his family. The total expenditure of his family was 64% of its total income. Raju got an 50% increment. If his family's expenditure remained unchanged, find the percentage that the new total savings of the family will form of its new total income.

37) Ramu scores 38% of the total marks in an exam and gets 18 marks more than the pass marks. Chintu secures 27% of the total marks in the same exam and fails by 37 marks. What is the pass marks as a percentage of the total marks?

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38) The monthly expenditure of A is 60% of his monthly income. The monthly expenditure of B is 250% of the monthly expenditure of A. The combined monthly income of A and B as a % of A's monthly income is at least.

39) When an article is sold at 3/5th of the actual selling price, there is a profit of 20%. The profit on selling 30 such articles at the actual selling price is equal to the
(a) CP of 45 articles
(b) CP of 30 articles
(c) CP of 15 articles
(d) SP of 30 articles

40) If the discount % on an article is equal to the profit percentage, And the ratio of the MP and CP is 13:8, find the approximate cost price of the article if its selling price is 120.
(a) 50
(b) 76
(c) 97
(d) 105

| Session 5 | Q.no. 35 - 40 | https://unacademy.com/class/arithmetic-marathon-for-cat2020-session-5/CQ3E9FAJ |

41) In an election between two candidates, one got 55% of the total valid votes, 20% of the votes were invalid. If the total number of votes was 7500, the number of valid votes that the other candidate got, was :
(a) 1500   (b) 1300
(c) 800   (d) 2700

42) In an election two candidates participated,   10% voters did not vote. 300 voters declared invalid and the winners get 60% of the voting list and win by 900 votes. Find the no. of valid votes
(a) 1600   (b) 1500
(c) 1800   (d) 2800

43) If the ratio of CP and the MP of an article is 4:5 while the profit % is half of the Discount %, then what is the value of the profit % and Discount percentage?

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44) Two candidates contested in an election. The candidate favoured by 38% of the total votes is rejected by a majority of 15732 votes. Find the total number of valid votes.

45) A shopkeeper defrauds both the dealer and the customer by measuring the weights incorrectly. When he is purchasing items from the dealer , he takes $6\frac{2}{3}\%$ more than the indicated weight and while selling he gives to the customer a quantity, such that if 12.5% added to it, the indicated weight is obtained. If the price that the shopkeeper charges his customer is the same as what the dealer charges the shopkeeper, what is the shopkeeper's profit percentage?

46) Majnu Kumar , a motorist uses 24% of his fuel in covering the first 20% of his total journey (in city driving conditions). If he knows that he has to cover another 25% of his total journey in city driving conditions, what should be the minimum percentage increase in the fuel efficiency for non-city driving over the city driving fuel efficiency, so that he is just able to cover his entire journey without having to refuel? (Approximately)
(a) 39.2% (c) 45.6%
(b) 43.5% (d) 41.2%

Session 6	Q.no. 41 - 46	https://unacademy.com/class/arithmetic-marathon-for-cat2020-session-6/Z2Z9RB4K

47) The price of an article at the beginning of a year was Rs 5000. It increased by a% and then decreased by b% over the year. It increased by a% and then decreased by b% over the next year too. At the end of the second year, the price of the radio was Rs 5000. Which of the following can be concluded?
(a) a > b
(b) a = b
(c) a < b
(d) none of these

48) The price of A is 19% less than that of B. The price of A increases by x% every month while the price of B decreases by y% every month. If x=5, What is the least value of y such that after two months the price of A will not be less than the price of B?

(a) 4.5

(b) 5

(c) 5.5

(d) 6

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49) A and B started a business with investments of Rs 2000 and Rs 5300 respectively. At the end of every month, A invests Rs 300 while B withdraws Rs 300. What is the ratio in which they should share the profits at the end of one year?

(a) 13:14

(b) 1:1

(c) 14:13

(d) Cannot be determined

50) In a colored picture of Red and green color, Red and green color is used in the ratio 2:3 respectively. If in the upper half, Green:Red is 5:4, then in the lower half Red:Green ratio is:

(a) 11:34   (c) 22:23

(b) 16:29   (d) 10:7

51) A company gives 12% commission to his salesman on his total sales and 1% bonus on the sales over 15000. If the salesman deposited 52350 in the company after deducting his commission from total sales. Find the total sales

(a) 60000   (b) 62000

(c) 80000   (d) 58000

52) A salesman is allowed 5.5% commission on the total sales made by him and a bonus of 0.5% on the sales over 10,000. If his total earning is Rs 1990. Find the total sales.

| Session 7 | Q.no. 47 - 52 | https://unacademy.com/class/arithmetic-marathon-for-cat2020-session-7/GVE45OFS |

53) A, B and C scored 28%, 36% and 53% marks respectively in an exam. B and C passed in the exam but A failed. One of them passed by 33 marks while A failed by 17 marks. What is the pass mark in the exam?

    (a) 192

    (b) 73

    (c) 175

    (d) Cannot be determined

54) A Kirana Shop bought some oranges at 4 per rupee and an equal number at 5 per rupee. He then sold the entire quantity at 9 for 2 rupees. What is the profit or loss percentage?

55) Even after reducing the marked price of a table by Rs 576, a shopkeeper makes a profit of 20%. If the cost price of table is Rs 3840, what % of profit would he have made if he sold the table at the marked price?

    (a) 35%

    (b) 40%

    (c) 45%

    (d) None of these

56) By selling 72 articles, a loss equal to the selling price of 8 articles was incurred. What is the loss percentage?

    (a) 11.11%

    (b) 9.09%

    (c) 10%

    (d) None of these

57) By selling toffees at 56 a rupee, a vendor loses 30%. How many toffees for a rupee should he sell in order to gain 40%?

    (a) 16

    (b) 24

    (c) 28

    (d) 30

58) A shopkeeper gives two successive discount of 10% and 20% on a marked price of Rs 5000 of a bicycle. He had to given a further discount equal to 20% of his cost price on his new selling price, as a result of which he made neither a profit nor a loss. Find his cost price for the bicycle.

(a) Rs 2000

(b) Rs 3000

(c) Rs 3600

(d) Rs 4500

59) Some articles are bought in the range of Rs 120 to Rs 200 and sold out in the range of Rs 250 to Rs 320. Find maximum profit of such 50 articles ?

    (a) 10000

    (b) 8000

    (c) 6000

    (d) None of these

60) If Fatima sells 60 identical toys at a 40% discount on the printed price, then she makes 20% profit. Ten of these toys are destroyed in fire. While selling the rest, how much discount should be given on the printed price so that she can make the same amount of profit

    (a) 30%

(b) 25%

(c) 24%

(d) 28%

| Session 8 | Q.no. 53 - 60 | https://unacademy.com/class/arithmetic-marathon-for-cat2020-session-8/O49DM8IL |

61) Chintu makes a profit of p% by selling an object for Rs 24. Had the CP and SP been interchanged, it would have led to a loss of 62.5p%. With the latter cost price, what should be the new selling price to get a profit of p%?

  (a) 34.40

  (b) 32.50

  (c) 25.60

  (d) 38.4

62) The price of groundnuts increased by a% per week over two successive weeks. If at the beginning, two kilograms were available for Rs 80 and after the two weeks they were available for Rs 105.80. What is the value of 'a'?

63) All the water in a big tank P is emptied into two smaller empty tanks Q and R. The volume of water in R is $33\frac{1}{3}$ % of that in P. If 300 litres of water, which had gone into Q had instead gone into R, Q would have 50% more water than R. What was the volume of water in P (in litres)?

  (a) 3000

  (b) 4500

  (c) 1200

  (d) 1800

64) Chintu appears for 4 papers-English, Maths, Physics and chemistry, maximum marks for which are in the ratio of 1:1:2:2. His marks are in the ratio of 4:8:13:15. If he got 80% of the total maximum marks, In how many papers did he get more than 80%?

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(a) 1

(b) 2

(c) 3

(d) Cannot be determined

65) A family's monthly savings are 20% of the total monthly income of the family. The monthly expenditure on food is increased from 20% to 30% of the total monthly income and its total monthly income as well as its savings remain unchanged. Find the percentage that its expenditure on food forms of its savings.

(a) 160%

(b) 150%

(c) 166.66%

(d) 175%

| Session 9 | Q.no. 61 - 65 | https://unacademy.com/class/arithmetic-marathon-for-cat2020-session-9/D38BS9P8 |

66) In an examination, 80% students passed in maths, 70% in science while 15% failed in both the subjects. If 325 students passed in both the subjects. Find the total number of students who appeared in the examination.

(a) 500

(b) 400

(c) 300

(d) 600

67) The consumption of petrol per hour of a car varies directly as the square of its speed. When the car is travelling at 40km/h its consumption is 1 litre per hour. If each litre costs Rs 40 and other expenses per hour cost Rs 40, then what would be the minimum expenditure required to cover a distance of 400km?

(a) 600

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(b) 700

(c) 800

(d) 900

68) Mr Ram borrows Rs 10,000 at 20% p.a for five years at simple interest. But from the fourth year onwards, on the entire amount due at the end of three years, the lender begins to charge 20% p.a interest compounded annually. What is the amount repaid by Mr. Ram after five years from the beginning?

(a) 15342

(b) 18432

(c) 17324

(d) 23040

69) A sum of money becomes 4 times of itself in eight years at CI. In how many years will the same sum becomes 16 times of itself?

(a) 54

(b) 44

(c) 32

(d) 16

70) A sum becomes 2.197 times of itself in 3 years at CI. Find the annual rate of interest.

71) A table is sold at 10% profit. If its cost price increased by Rs 20 and the selling price is increased by Rs 10, the profit would be $1\frac{1}{9}$%. Find the original SP.

72) At what rate per annum will Rs 32000 yields a CI of Rs 5044 in 9 months interest being compounded Quarterly.

| Session 10 | Q.no. 66 - 72 | https://unacademy.com/class/arithmetic-marathon-for-cat2020-session-10/0NSB0HAN |

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73) Deekshant borrows a certain sum of money form the Wuhan City Bank at 10% per annum at CI. The entire debt is discharged in full by Deekshant on payment of two equal instalments of Rs 10000 each, one at the end of the first year and the other at the end of the second year. What is the Approximate value of amount borrowed by him?

   (a) 17355

   (b) 17920

   (c) 18524

   (d) 16940

74) The population of Delhi was 1283575 on 1ˢᵗ January 2011 and the growth rate of population was 10% in the last year and 5 % in the years priors to it, the only exception being 2009 when because of huge exodus there was a decline of 20% in population. What was the population on January 1ˢᵗ 2005 ?

   (a) 1000000

   (b) 1200000

   (c) 1250000

   (d) 1500000

75) In an election of 3 candidates A,B and C , A gets 50% more votes than B. A also beats C by 18000 votes. If it is known that B gets 5% more votes than C, find the number of voters on voting list. (Given that 90% of voters in the list votes and no votes were illegal).

76) In an election of three candidates P, Q and R, P gets 50% more votes than Q. He also beats R by 24000 votes. R beats Q by 5 percentage points. Find the number of votes polled.

77) Ram manufactures steel cups. On any day Ram manufactures as many cups as the price per cup. Everyday Ram sells all of his cups at a profit of Rs 6 per cup. If at the end

of the day he makes a profit of 15%, then how much profit did he make by the end of 5 days?

   (a) 1000

   (b) 1200

   (c) 1400

   (d) 1500

   (e) None of these

| Session 11 | Q.no. 73 - 77 | https://unacademy.com/class/arithmetic-marathon-for-cat2020-session-11/U4E4YEOJ |

78) A dishonest dealer professes to sell his goods at CP, but he uses a weight of 950gm for the 1Kg weight. Find the gain percent.

79) A grocer sells rice at a profit of 10% and uses a weight which is 20% less. Find his total percentage gain.

80) Chintu sells his table at a profit of 12.5% and the chair at a loss of 8.33% but on the whole he gains Rs 25. On the other hand if he sells the table at a loss of 8.33% and the chair at a profit of 12.5% then he neither gains nor loses. Find the CP of the table.

81) Some articles have purchased for Rs 450, and one-third be sold at a loss of 10%, at what % should the reminder be sold so as to gain 20% on the whole transaction?

82) Bhanu bought an article after getting 35% discount on its MRP. Bhanu marks it Rs600 more than the price he had bought and gives a discount of 15% on it. If amount of profit earn by him is Rs432, then find the initial marked price for Bhanu.

 (a) 600

 (b) 750

 (c) 800

 (d) None of these

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83) If a man sells two horses for Rs 3910 each, gaining 15% on one and losing 15% on the other, find the total gain or loss.

84) Out of the shirts produced in a factory, 15% are defective, while 20% of the rest are sold in the domestic market. If the remaining 8840 shirts are left for export, then the number of shirts produced in the factory is

85) The number of girls appearing for an admission test is twice the number of boys. If 30% of the girls and 45% of the boys get admission, the percentage of candidates who do not get admission is

86) The salaries of Ramesh, Ganesh and Rajesh were in the ratio 6:5:7 in 2010, and in the ratio 3:4:3 in 2015. If Ramesh's salary increased by 25% during 2010-2015, then the percentage increase in Rajesh's salary during this period is closest to
[CAT-2019]

| Session 12 | Q.no. 78 - 86 | https://unacademy.com/class/arithmetic-marathon-for-cat2020-session-12/MNR03JK4 |

87) The income of Amala is 20% more than that of Bimala and 20% less than that of Kamala. If Kamala's income goes down by 4% and Bimala's goes up by 10%, then the percentage by which Kamala's income would exceed Bimala's is nearest to
[CAT-2019]

88) A shopkeeper sells two tables, each procured at cost price p, to Amal and Asim at a profit of 20% and at a loss of 20%, respectively. Amal sells his table to Bimal at a profit of 30%, while Asim sells his table to Barun at a loss of 30%. If the amounts paid by Bimal and Barun are x and y, respectively, then $(x - y) / p$ equals
[CAT-2019]

(a) 1

(b) 1.2

(c) 0.7

(d) 0.50

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89) A and B finishes a piece of work in 6 days, B and C finishes the same work in 24 days. A worked for 4 days, B worked for 7 days and C completed the remaining work in 23 days. Then C alone will complete the work in

90) A,B and C can complete a work in 6 hours less time than A alone and 1 hours less time than B alone and half the time needed by C to do it. In how much time C finishes the work.

| Session 13 | Q.no. 87 - 90 | https://unacademy.com/class/arithmetic-marathon-for-cat-2020-session-13/Y9IPYCX0 |

91) Mukesh purchased 10 bicycles in 2017, all at the same price. He sold six of these at a profit of 25% and the remaining four at a loss of 25%. If he made a total profit of Rs. 2000, then his purchase price of a bicycle, in Rupees, was   [CAT-2019]

(a) 6000

(b) 8000

(c) 4000

(d) 2000

92) John gets Rs 57 per hour of regular work and Rs 114 per hour of overtime work. He works altogether 172 hours and his income from overtime hours is 15% of his income from regular hours. Then, for how many hours did he work overtime?
[CAT-2019]

93) A wholesaler bought walnuts and peanuts, the price of walnut per kg being thrice that of peanut per kg. He then sold 8 kg of peanuts at a profit of 10% and 16 kg of walnuts at a profit of 20% to a shopkeeper. However, the shopkeeper lost 5 kg of walnuts and 3 kg of peanuts in transit. He then mixed the remaining nuts and sold the

mixture at Rs. 166 per kg, thus making an overall profit of 25%. At what price, in Rs. per kg, did the wholesaler buy the walnuts?
(a) 84

(b) 86

(c) 96

(d) 98

94) A merchant marks up the cost of cloth by 30% and then gives a discount of 20% on the marked price to all his customers. What is his profit/loss percentage in winter when the meter-scale shrinks by 10% due to cold?

95) Two pipes A and B can fill a cistern in 12 minutes and 15 minutes respectively but a third pipe C can empty the full tank in 6 minutes, A and B are kept open for 5 minutes in the beginning and then C is also opened. In what time is the cistern emptied?

(a) 30 min   (b) 33 min

(c) $37\frac{1}{2}$ min   (d) 45 min

96) A and B can separately finish a piece of work in 20 days and 15 days respectively. They worked together for 6 days, after which B was replaced by C. if the work was finished in next 4 days, then the the number of days in which C alone could do the work is

| Session 14 | Q.no. 91 - 96 | https://unacademy.com/class/arithmetic-marathon-for-cat-2020-session-14/WDPK7BXW |

97) Amit, Bhanu and Chintu inherited few gold coins . If they share those coins in the ratio 1:5:8, then 1 coin remains left out. But , if they share the coins in the ratio 1:3:7, then no coin is left . Comparing both the cases, what is the minimum possible difference in number of coins that Chintu can get?

A) 6   B) 11   C) 9   D) 7

98) The sum of the ages of A and B is 45 years. 5 years ago the product of their ages was 4 times the A's age at that time. The present ages of B is :-

(a) 4

(b) 9

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(c) 13

(d) NOT

99) The ratio of income of A and B is 2:3. The sum of their expenditure is Rs 8000 and the amount of savings of A is equal to the amount of expenditure of B. What is the sum of their savings?

(a) 12000

(b) 16000

(c) 8000

(d) 22000

100) Three men P, Q and R working together can do a piece of work in 30 days. They start the work together and P works for 3 days and takes rest on the fourth day Q works for 5 days and takes rest on the next two days and R works for 7 days and takes rest on the next three days. If P,Q and R work at the same rate, in how many days will the work be completed?

   (a) 39 days

   (b) 40 days

   (c) 41 days

   (d) 42 days

101) P can do a piece of work in 20 days working 7 hours a day. The work is started by P and on the second day one man whose capacity to do the work is twice that of P, joined. On the third day another man whose capacity is thrice that of P joined. This manner of working continues till the work is completed. In how many days will the work be completed , If every one works for four hours a day?

102) The ratio of the sum of monthly incomes of A and B to that of B and C is 7:8. The ratio of the sum of the monthly incomes of B and C to that of C and A is 4:5. If A's monthly income is Rs 90,000. Find the monthly income of B (in Rs)

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(a) 54000

(b) 48000

(c) 50000

(d) 57500

103) A numbers of crabs are kept in a jar of height of 40cm. One crab climbs up by 3 cm in a minute and in the subsequent minute it is pulled down by the other crabs by 1cm. If this cycle of alternate up and down movements of the crabs repeats until it reaches the top, then in how many minutes will the crab reach the top of the jar? (Assume once it reaches the top it is not pulled down)

(a) 40 mins

(b) 39 mins

(c) $38\frac{2}{3}$ mins

(d) $37\frac{1}{2}\ mins$

Session 15	Q.no. 97 - 103	https://unacademy.com/class/arithmetic-marathon-for-cat-2020-session-15/CLL77172

104) A and B agree to complete a piece of work in 20 days. They also agree forfeit double the amount of wages corresponding to the uncompleted part of the work, if they fall. If A alone can complete the work in 40 days and they lost 1/3rd of the pay due for the total work. In how many days can B alone complete the work?

(a) 30

(b) 60

(c) 40

(d) 80

105) Arun drove from home to his hostel at 60 miles per hour. While returning home he drove half way along the same route at a speed of 25 miles per hour and then took a bypass road which increased his driving distance by 5 miles, but allowed him to drive at 50 miles per hour along this bypass road. If his return journey took 30 minutes more than his onward journey, then the total distance traveled by him is
[CAT-2017]

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(a) 60 miles

(b) 65 miles

(c) 70 miles

(d) 55 miles

106) A motorbike leaves point A at 1 pm and moves towards point B at a uniform speed. A car leaves point B at 2 pm and moves towards point A at a uniform speed which is double that of the motorbike. They meet at 3:40 pm at a point which is 168 km away from A. What is the distance, in km, between A and B?
[CAT-2017]

(a) 364

(b) 378

(c) 380

(d) 388

107) A man leaves his home and walks at a speed of 12 km per hour, reaching the railway station 10 minutes after the train had departed. If instead he had walked at a speed of 15 km per hour, he would have reached the station 10 minutes before the train's departure. The distance (in km) from his home to the railway station is
[CAT-2017]

Session 16	Q.no. 104 - 107	https://unacademy.com/class/arithmetic-marathon-for-cat-2020-session-16/8MCDVXUU

108) The ratio of the income of P and Q last year was 4:3, respectively. The ratio of their individual incomes of the last year and the present year are 3:4 and 5:6 respectively. If their total income for the present year is Rs 8.04 lakh, then the income of Q last year was :

(a) Rs 3.6 lakh

(b) Rs 2.4 lakh

(c) Rs 2.7 lakh

(d) Rs 2.8 lakh

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109) Six small pumps and three large pumps are filling a tank. Each of the six small pumps works at 3/4th the rate of each of the two large pumps. If all 9 pumps works at the same time, they would fill the tank in what fraction of the time that it would have taken for a single large pumps?

    (a) 1/15

    (b) 2/15

    (c) ¾

    (d) None of these

110) A naughty bird is sitting on top of a car. It sees another car approaching it at a distance of 12 km. The speed of the two cars is 60 km/hr each. The bird starts flying from the first car and moves towards the second car, reaches the second car and comes back to the first car and so on. If the speed at which the bird flies is 120 km/hr. The total distance travelled by the bird. (Assume that the two cars have a crash)

111) A train crosses a tunnel half of its length with a speed of 72 km/hr in 1 min, then find in how much time it will cross another train of double length which is standing on platform with 60% of its speed?

112) Pipes P and Q can fill a tank in 20 minutes and 30 minutes respectively and R can empty in 15 minutes. P is opened for a minute and then closed Q is then opened for a minute and then closed . R is then opened for a minute and then closed . This process is repeated until the tank is filled. Find the time taken to fill the tank (in minutes)

    (A) 169

    (B) 170

    (C) 167

    (D) 166

113) Chintu breaks the pencil in such a way that the ratio of two broken parts is same as that of the original length of the pencil to one of the larger part of the pencil. The ratio of the other part to the original length of pencil is :

(a) $1:2\sqrt{5}$

(b) $2:\sqrt{5}$

(c) $2:(3+\sqrt{5})$

(d) None of these

Session 17	Q.no. 108 - 113	https://unacademy.com/class/arithmetic-marathon-for-cat-2020-session-17/0ZSU0I02

114) A and B start simultaneously from M and N towards N and M respectively. A takes 20 minutes to cover MN. B takes 30 minutes to cover NM. Find the time they would take to meet each other (in minutes)

115) A train crosses two bridges 430m and 550m long in 30 seconds and 36 seconds respectively. Find the speed of the train.

116) A car has to cover a distance of 200km to reach city Q from city P. After travelling a certain distance, his car develops a problem and travels at $3/4^{th}$ of its original speed , thereby he reached Q 1 hour late. Had the problem developed 30 km earlier, he would have reached B 12 minutes later. Find the initial distance it travelled without the problem and the speed over that part of the journey.

(a) 50km, 60km/h

(b) 40km, 40km/h

(c) 60km, 30 km/h

(d) 50km, 50km/h

117) A thief was running along a median on a road at 6 kmph. He crossed a police jeep moving at 9 kmph in the opposite direction. The jeep had to continue for 10 more minutes before it could find a gap in the median and start chasing the thief. Find the

total time taken by the jeep to catch the thief from the time it crossed him (in minutes).

(a) 45

(b) 50

(c) 55

(d) 60

118) A passenger train travelling at 60 km/h , Crosses a cyclist who is cycling at 12 km/h in the opposite direction in 20 seconds. Find the time taken by the train to cross another cyclist travelling at 20 km/h in the same direction as the train does.

119) 45 People can do a piece of work in 25 days. 1 man started the work & every next day 1 man keeps on joining him. In how many days the work will be completed.

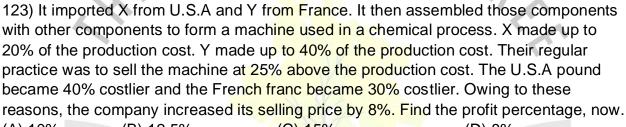| Session 18	Q.no. 114 - 119	https://unacademy.com/class/arithmetic-marathon-for-cat-2020-session-18/QKP2AEIB

120) Distance between A and B is 120 km. If they both move towards each other (opposite direction) they meet in 2 hours but if they move in same direction they meet in 6 hours. Find their speed.

121) A flight which leaves city P at 3:00 a.m. reaches city Q at 4:00 p.m. on the same day. Another flight which leaves Q at 7:00 p.m, reaches P at 3:00 p.m. on the next day. If both flights travel non-stop at 700 km/hr and all times mentioned are local times, find the distance between P and Q (in km).
(A) 11,550
(B) 10850
(C) 6,650
(D) 5,775

122) There is a leak in the bottom of the tank. This leak can empty a full tank in 8 hr. When the tank is full, a tap is opened into the tank which intakes water at rate of 6 L per hour and the tank is now emptied in 12 hr. What is the capacity of the tank?

   (a) 28.8 litres

   (b) 36 litres

   (c) 144 litres

   (d) 145 litres

123) It imported X from U.S.A and Y from France. It then assembled those components with other components to form a machine used in a chemical process. X made up to 20% of the production cost. Y made up to 40% of the production cost. Their regular practice was to sell the machine at 25% above the production cost. The U.S.A pound became 40% costlier and the French franc became 30% costlier. Owing to these reasons, the company increased its selling price by 8%. Find the profit percentage, now.
(A) 10%   (B) 12.5%   (C) 15%   (D) 8%

124) Ajith started from a point on a river in his sailboat and rowed in the same direction as the wind. He travelled 60km in 6 hours and returned to his starting point after 10 more hours of rowing against the wind, if there were no wind, how long would he have taken for the entire trip?

125) P and Q are the two points along a river. Two boats B1 and B2 started simultaneously from P and Q towards Q and P respectively. If the distance between them reduces by 50km in 5 hours and both boat travels at the same speed in still water, find the speed of either boat in still water.

126) The ratio of monthly income of A and B is 3:4 and that of their expenditures is 4:5. Which of the following represents a possible value of the ratio of their saving?

   (a) 9:10

   (b) 3:4

   (c) 13:20

(d) 4:5

Session 19	Q.no. 120 - 125	https://unacademy.com/class/arithmetic-marathon-for-cat-2020-session-19/H8ZKSETJ

127) The average of a set of whole numbers is 27.2. When the 20% of the elements are eliminated from the set of numbers then the average become 34. The number of elements in the new set of numbers can be :

(a) 27

(b) 35

(c) 52

(d) 63

128) A and B can complete a job in 15 days working together. B and C can complete the job in 20 days working together. A and C can complete the job in 30 days working together. Who is the slowest of the 3 workers?

(a) A

(b) B

(c) C

(d) None of these

129) Mr Bazigar buys 2 lots of mangoes. The first lot cost him Rs 30 per dozen and the second lot Rs 50 per dozen. He sold all the mangoes at Rs 40 per dozen. Find his profit or loss % if he spent the same amount of money on each of the lots.

(a) 6.66% loss

(b) 6.67% profits

(c) 5% Profit

(d) 5% loss

130) P can complete a job in 30 days. Q can complete the job in 60 days. If they work on alternate days, the job would be completed in the

    (A) Least possible time, if P starts the job.

    (B) Least possible time, if Q starts the job.

    (C) Same time, irrespective of who starts the job.

    (e) Not possible to find

Session 20	Q.no. 126 - 130	https://unacademy.com/class/arithmetic-marathon-for-cat-2020-session-20/TLV1LLQ9

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