EQUATION, RATIO, PROPORTION & VARIATION

(Ref: FM-QAH2022004)

Simple Equation

1.	i. $2x + 3y = 8$,	ii. $3x + 4y = 24$
	5x + 4y = 13	4x + 3y = 22

2. The total number of students in the two schools "Blue Bells" and "Green Bells" is 625. The ratio of the number of students in these schools is 13 : 12. If x students are shifted from "Green Bells" to "Blue Bells", the ratio of the number of students in the two schools would be 3:2. Find x.

3. i. $x + 2y + 3x = 14$	ii. $4x - 3y + z = -10$
2x + y + 2z = 10	2x + y + 3z = 0
3x + 3y + 4z = 21	-x + 2y - 5z = 17

- 4. The cost of 5 oranges, 4 apples and 6 tomatoes is Rs. 100 while the cost of 10 oranges, 6 apples and 9 tomatoes is Rs.180. find the cost of 8 oranges?
- 5 Cabbages, 12 Coconuts and 19 Brinjals cost Rs. 275. 23 Cabbages, 19 Coconuts and 15 Brinjals cost Rs 360. Find the total cost of 1 cabbage, 1 coconut and 1 Brinjal?
- 6. Find x and y 199x + 201y = 1001201x + 199y = 999
- 7. $\frac{20}{x+y} + \frac{12}{x-y} = 8$ $\frac{30}{x+y} - \frac{4}{x-y} = 1$

Some Additional Cases

- 8. For what value of k the equations x + 5y= 10 5x + ky= 50 has infinite solutions?
- 9. For what value of k the equations 4x + 5y= 32 12x+15y= 2k are not inconsistent?
- 10. a) Find the value of a, if the equations given below are consistent and $x \neq 0 \neq y$? 5x + 4y = 3215x + 2ay = 96a) 3 b) 4 c) 5 d) 6

b) Find the value of m, If 3x + (m + 3) y = 1 and mx + 6y = 4 have a unique solution?
a) 6 b) -6
c) 3 d) R - {3, -6}

Based on Numbers

11. A two digit number becomes five sixth of itself when its digits are reversed. The two digit differ by 1. What is the original number? 12. A is a two-digit number whose units digits are nonzero. A is greater than twice the number formed by interchanging the positions of its digits. How much value can A take?

a) 11 b) 12 c) 13 d) 14

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- 13. A three-digit number is such that when its reverse is subtracted from it, the result is 297. Also, thrice the tens digit is equal to the difference between its hundreds and units digits. How many possible values are there for the number?
- 14. When a three-digit number is reversed, the number decreases by 396. The difference between the digit at the units place and the digit at the tens place is the same as the difference between the digits at the tens place and the hundreds place. If the product of the digits of the three-digit number is non-zero, then how many such three-digit numbers are possible?

Word Problems-

- 15. Four years ago a man was thrice as old as his son. Eight years hence, the man will be twice as old as his son. What is the present age of the son?
- 16. A man said to his son, "I was one-third of your present age when you were born". If the present age of the man is 48 years, find the present age of the son.
- 17. Twenty-seven years ago, age of Pankaj was half of Ram's present age. The sum of their present ages is 90 years. What are the present ages (in years) of Pankaj & Ram.

a) 36, 28	b) 30, 24
c) 48, 42	d) 42, 36

- 18. A rope of 77 meters is cut into two pieces such that the length of one piece is 4/7 of the other. What is the length of 5/14 of the longer piece?
- A bag has a total of 120 notes in denominations of Rs.2, Rs.5, and Rs. 10. The total value of the notes in the bag is Rs.760. If there were twice as many Rs.5 notes, the total value of the notes would be Rs.960. Find the number of Rs.10 notes in the bag.
- 20. A question paper consists of 50 questions. Each correct answer fetches three marks and one mark is deducted for each wrong answer. A student who attempted all the questions scored 90 marks. Find the number of questions answered by him correctly.
- 21. Three friends, returning from a movie, stopped to eat at a restaurant. After dinner, they paid their bill and noticed a bowl of mints at the front counter. Sita took 1/3 of the mints, but returned four because she had a momentary pang of guilt. Fatima then took 1/4 of what was left but returned three for similar reasons. Eswari then took half of the remainder but threw two back into the bowl. The bowl had only 17 mints left



when the raid was over. How many mints were originally in the bowl? a) 38 b) 31 c) 41 d) None

- 22. My son adores chocolates. He likes biscuits. But he hates apples. I told him that he can buy as many chocolates as he wishes. But then he must have biscuits twice the number of chocolates and should have apples more than biscuits and chocolates together. Each chocolate cost Re 1. The cost of an apple is twice the chocolate and four biscuits are worth one apple. Then which of the following can be the amount that I spent on that evening on my son if the number of chocolates, biscuits, and apples brought were all integers?
 - a) Rs. 34 b) Rs. 33 c) Rs. 8 d) None
- 23. A test has 50 questions. A student scores 1 mark for a correct answer, -1/3 for a wrong answer, and -1/6 for not attempting a question. If the net score of a student is 32, the number of questions answered wrongly by that student cannot be less than a) 6 b) 12 c) 3 d) 9

Ratio, Proportion & Variation Basics

- 24. x : y = 7:4 then (4x+7y) : (7x+4y) a) 65:56 b) 56:65 c) 34:45 d) 13:18
- 25. If x:y = 4:7, the value of $(x^2 + y^2) / (x^2 y^2)$? a) $-\frac{33}{65}$ b) $\frac{65}{33}$ c) $\frac{33}{65}$ d) $-\frac{65}{33}$
- If x & y are positive numbers and 2x² 3y² = xy, find the ratio x:y.
- 27. If a:b:c=2:3:4 and 2a-3b+4c=33, then the value of c is : a) 6 b) 9 c) 12 d) 15
- 28. If A:B=2:3 and B:C=4:5, then A:B:C is:
- a) 2:3:5 b) 8:12:15 c) 4:5:6 d) 6:4:5
- 29. If a:b = 2:3, b:c = 6:5 and c:d = 3:5 then find the value of a:b:c:d
 a) 18:25:12:18
 b) 12:18:15:25
 c) 25:18:15:12
 d) 12:25:18:25
- 30. Find a:b:c, if 6a = 9b = 10c. a) 12 : 10 : 8 b) 15 : 4 : 3 c) 15 : 18 : 9 d) 15 : 10 : 9
- 31. If $\frac{a}{b} = \frac{1}{3}$, $\frac{b}{c} = 2$, $\frac{c}{d} = \frac{1}{2}$, $\frac{d}{e} = 3$ and $\frac{e}{f} = \frac{1}{4}$, then what is the value of abc/def? a) $\frac{3}{8}$ b) $\frac{27}{8}$ c) $\frac{3}{4}$ d) $\frac{27}{4}$
- 32. If (a + b) : (b + c) : (c + a) = 6 : 7 : 8 and (a + b + c) = 14, then the value of c is a) 6 b) 7 c) 8 d) 14
- 33. If ab : bc : ca = 3 : 5 : 4, find a : b : c.
- 34. There are two sections A and B. If few students go from B to A then the ratio of students in A and B

becomes 7:1. If insteaciiilt same number students				
go from A to B then this ratio become's 3:7. What				
can be the number of students that shifted?				
a) 46	b) 56	c) 66	d) 73	

Word Problems

35.	The ratio of two numbers is 3:4. If 3 is subtracted from both the numbers, the ratio becomes 1:2. Find the sum of the two numbers?			
	a) 9 b) 10.5	c) 11.5	d) 12	
36.	Four Numbers having ra of the numbers is 18, th and forth number?	ntio of 3:1:2:4. An ann find the su	And the sum m of second	
	a) 8 b) 9	c) 10	d) 12	
37.	If 40% of a number is e number, what is the rasecond number?	qual to two-thir atio of first nu	d of another mber to the	
	a) 2 : 5 b) 3 : 7	c) 5 : 3	d) 7 : 3	
38.	If 1066 is divided among $B = 3 : 4, B : C = 5 : 6$ ar the maximum?	A, B, C and D nd C : D = 7 : 5,	such that A : , who will get	
	a) B b) A	c) C	d) D	
39.	Divide 1170 amongst A, i) Shares of A, B & C is i	B & C such than the ratio of 1/	at '2 : 1/3 : 1/4	
	ii) $\frac{A's \text{ Shares}}{2} = \frac{B's \text{ Shares}}{3}$	$\frac{ces}{d} = \frac{C's Share}{4}$	<u>es</u>	
40.	Salaries of A, B and C respectively. If their salar	were in the ra	tio 3:5:7, ased by 50%,	
	60% and 50% respective of their respective new s a) 4 : 5 : 7 b) 3 : c) 4 : 15 : 18 d) 9 :	ly, what will be alaries? 6 : 7 16 : 21	the new ratio	
41.	The sum of the three nut first to second is 3:2 an third is 5:3, then the sec	mber is 62.If th d that of the se	e ratio of the econd to the	
	a) 21 b) 22	c) 20	d) 24	
42.	In bag there are coins of 1:2:3. If there are Rs.45 ir coins are there?	25p, 10p and 5 all then find ho	ip in the ratio ow many 25p	
	a) 60 b) 65	c) 70	d) 75	
43.	1104 is divided betwee boys, so that the share of are in the proportion of 3 boy get?	n 3 men, 4 wo f a man, a wom 3:2:1. How muc	omen and 6 an and a boy h does each	
	a) 48 b) 64	c) 96	d) CBD	
44.	Seats of Physics, Chem school are in the ratio 4 increase these seats b What was the total num finally?	istry and Math 5:6. There is a y 75 in each ber of seats i	ematics in a a proposal to department. n the school	
	a) 600 b) 750	c) 900	d) None	
45.	The ratio of the present a is 1:5 and that of his mo	ages of a son a ther and father	nd his father is 4:5. After to that of his	



mother becomes 3:10. What is the present age of the father?

a) 30years b) 28years c) 37years d) 35years

46. Let the ratio of male population to female population be 3:4 in the first year and in the second year be 4:5. If their population grows at a uniform rate then find the ratio of male population to female population in the third year.

a) 5:6 b) 64:75 c) 16:25 d) CND

47. A, B and C had a total of Rs. 8,000 with them. They spent Rs. 50, Rs. 100 and Rs. 200 respectively. The amounts remaining with them are in the ratio 22:14:15. What was the amount with B initially?

Income & Expense Based

- 48. The incomes of A,B and C are in a ratio of 7:9:12 and the expenditures are in a ratio of 8:9:15. If A saves 1/4 of its income then what will be the saving ratio of A ,B and C?
- 49. The ratio of income of a and b is 5:4 and the ratio of their expenditure is 6:5. If the ratios of their savings is 7:5, then what percentage of income does a save?
- 50. If the ratio of incomes of A, B and C are in the ration
 8: 6: 5 and the ratio of their savings are in the ratio
 17: 15: 10, who among them spends the most?
 a) A
 b) B
 c) C
 d) CBD
- 51. The income of Riya and Priya are in the ratio of 4:5 and their expenditure is in the ratio of 2:3. If each of them saves 2000, then find their income.

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a) 4000, 6000	b) 4000, 5000
c) 5000, 4000	d) 5000, 6000

52. The ratio of the incomes of A and B last year was 9:13. The ratio of their incomes from last year to this year is 9:10 and 13: 15 respectively. The sum of their present incomes is Rs 50,000. What is the present income of B?

a) Rs 32,000	b) Rs 24,000
c) Rs 20,000	d) Rs 30,000

53. The ratio of the incomes of P and Q is 3 : 4 and the ratio of their expenditures is 5: 6. Who saves more between P and Q?

Proportion

- 54. The mean proportional between A and B is 9 and the third proportional of A & B is 243. Find the larger of the two numbers.a) 81 b) 108 c) 27 d) 36
- 55. If (x 1), (x 3), (x 5), (x 6) are in proportion. Find x.
- 56. Three positive numbers p, q and r satisfy

$$\frac{a+b}{c} = \frac{b+c}{a} = \frac{a+c}{b} = m. \ m = __$$

a) 7/2 b) 9/2 c) 3/2 d) 2

57. If $\frac{a}{b+c-a} = \frac{b}{c+a-b} = \frac{c}{a+b-c} = l$, I can be _____

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a) 1 c) -1/2 b) ½d) More than one of the above

58. If a, b, c, d are in continued proportion. Find mean proportion of (a+b) and (c+d).
a) (a + d)
b) (b + c)

c)
$$(b - c)$$
 d) $(a - d)$

- 59. If a, b, c, d are in continued proportion, find $\frac{a^3+b^3+c^3}{b^3+c^3+d^3}$
- 60. If a, b, c, d are in continued proportion then $\frac{a-d}{b-c} \ge x$. What is the value of x.

61. Solve for x,
$$\frac{(\sqrt{1+x}+\sqrt{1-x})}{\sqrt{1+x}-\sqrt{1-x}} = 2$$

62. If $\frac{mp^2 + nq^2}{mp^2 - nq^2} = \frac{77}{13}$ and $\frac{pq^2 + mn^2}{pq^2 - mn^2} = \frac{17}{7}$, then find the value of p: n. a) 2:3 b) 4:9 c) 9:4 d) 3:2

Variation

63. Three cars travel same distance with speeds in the ratio 2 : 4 : 7. What is the ratio of the times taken by them to cover the distance?a) 12:6:7 b) 14:7:4 c) 10:5:9 d) 7:4:14

a) 12.0.7 b) 14.7.4 c) 10.5.9 d) 7.4.

- 64. a) A varies directly with the square of B. when B is 12, A is 452. Find A when B is 18.b) A varies inversely with the square of B. when B is 2, A is 48. Find A when B is 4.
- 65. The resistance of a wire is proportional to its length and inversely proportional to the square of its radius. Two wires of the same material have the same resistance and their radii are in the ratio 9 : 8. If the length of the first wire is 162 cm, find the length of the other.
 - a) 64 cm b) 120 cm c) 128 cm d) 132 cm
- 66. A meteorite has a property of travelling in space at the speed directly proportional to its weight. After every year, it gets hit by an asteroid which breaks it into two parts in the ratio 1:2 by weight. Find the ratio of the speed of present meteorite to the speed of the part with the lightest weight after 4 years.
 (a) 3⁴:1
 (b) 3⁸:2²
 - (a) $5 \cdot 1$ (b) $5 \cdot 2$ (c) $3^8:1$ (d) $2^2: 3^7$
- 67. If $x^2 \propto \sqrt[3]{y}$, when x = 6, y = 64. For what value of x, will y = 27.
- 68. A is directly proportional to B and also directly proportional to C. When B = 6 and C = 2, A = 24. Find the value of A when B = 8 and C = 3. a) 42 b) 40 c) 58 d) 48
- 69. x, y and z are three quantities. x varies directly with y when z is constant. x varies directly with z when y



is constant. x = 6000 is y = 20 and z = 30. Find x if y = 40 and z = 60.

- 70. P, Q and R are three quantities. P varies inversely with Q when R is constant. Q varies inversely with R when P is constant. When Q = 8, and R = 7, P = 30. Find P if Q = 16 and R = 21.
- 71. The monthly expenditure incurred by a hostel comprises a fixed component and a variable component, which varies with the number of persons living in the hostel. If there are 100 persons, the average monthly expenditure per person is Rs.2400. If there are 200 persons, the average monthly expenditure per person is Rs.2200. What is the fixed component of the monthly expenditure (in Rs.) of the hostel?

a) Rs.26000	b) Rs.40000
c) Rs.30000	d) Rs.50000

- 72. The speed of a locomotive without any wagons attached to it is 40 kmph. It diminishes by a quantity which is proportional to the cube root of the number of wagons attached. If the speed of the locomotive is 34 kmph when 27 wagons are attached, what is the maximum number of wagons that can be attached if the condition is that the speed should not fall below 30 kmph?
 - a) 125 b) 512 d) 729 d) 27
- 73. Costs are divided as fixed cost or variable cost, fixed cost are independent of units produced and variable cost vary directly with number of unit produced. When 30 units are produced total cost is Rs. 7200 When 50 units are produced total cost is Rs. 9600 Find total cost if 60 units are produced.
- 74. Part of y varies directly with x and rest of it varies inversely with x. if x = 1, y= 11 & x = 2, y = 13. Find y if x = 3.

Miscellaneous & Mix questions

- 75. A Zoo has 66 fishes, some white and rest orange. Which of the following could be the ratio of white to orange fishes in the zoo?
 a) 1:7 b) 2:9 c) 3:7 d) 2:5
- 76. A diamond falls and breaks into three pieces whose weights are in the ratio 1:3:6. The value of the diamond is proportional to the square of its weight. If the original value is 30,000, what is the loss in the value due to the breakage?

a) 13,800	b) 16,200
c) 18,600	d) 19,400

c) 1070

- 77. In the famous Bhojpur island, there are four men for every three women and five children for every three men. How many children are there in the island if it has 531 women?a) 454 b) 1180
- 78. Three containers of capacity 20 L, 5 L and 9 L contain mixture of milk and water with milk concentrations 90%, 80% and 70% respectively.

d) 389

The contents of three containers are emptied into a large vessel. What is the approximate ratio of milk to water in the resultant mixture? a) 3:1 b) 4:1 c) 5:1 d) 2:1

79. Number of students in 4th and 5th class is in the ratio6 : 11. 40% in class 4 are girls and 48% in class 5 are girls. What percentage of students in both the

classes are boys?	
a) 62.5%	b) 54.8%
c) 52.6%	d) 55.8%

c) 17 : 27

c) Rs.175

80. In a conference hall, there are people in blue and yellow dresses. The ratio of the number of women in blue to the number of men in yellow is 3:2 and the ratio of the number of men in blue to the number of women in yellow is 3:5. If the ratio of the number of people in blue to the number of people in yellow is 21:23, then what is the ratio of the number of men to the number of women in the conference hall?
a) 19:21
b) 21:29

d) CND

- 81. Gunpowder can be prepared by saltpeter and nitrous oxide. The price of saltpeter is thrice the price of nitrous oxide. Notorious gangster Kallu Bhai sells gunpowder at 2160 per 10gm, thereby making a profit of 20%. If the ratio of saltpeter and nitrous oxide in the mixture be 2:3, find the cost price of saltpeter.

 a) 210/gm
 b) 300/gm
 c) 120/gm
 d) None
- 82. A, B, C, D, and E have some chocolates with them with their numbers in ratio 12:2:2:3:5. 'A' distributed some of his chocolates among B, C, D, and E such that the new ratio of chocolates with each of them is 6:9:6:7:8. Find the ratio of chocolates distributed to B, C, D, and E by A.
 a) 12:6:5:1
 b) 2:3:4:5
 - c) 7 : 4 : 4 : 3 d) CND
- 83. Raman has a certain number of Rs.1, Rs.2, and Rs.10 notes in his wallet. The number of Rs.1 notes and Rs.2 notes are in the ratio 4:3. If the number of Rs.10 notes exceeds the total number of Rs.1 and Rs.2 notes, which of the following is a possible value of the total amount in his wallet?
 a) Rs.160
 b) Rs.180

d) Rs.70

- 84. Arun had a certain amount of money. Bharat had seven times the amount that Arun had. Arun bought a certain number of gold coins and was left with one-third the cost of a gold coin. Bharat bought as many gold coins as he could and found that if he had Rs.7,500 more, he could have bought one more gold coin. Find the cost of each gold coin.
 a) Rs.22,500
 b) Rs.10,500
 c) Rs.11,250
 d) Rs.15,000
- 85. Four inlet pipes with circular cross-section take 9 hours to fill a cistern. How many pipes of half the radius are needed to fill the cistern in 6 hours, if speed of water how is thrice the earlier speed?



CAT PAST YEAR QUESTIONS

 Onion is sold for 5 consecutive months at the rate of Rs 10, 20, 25, 25, and 50 per kg, respectively. A family spends a fixed amount of money on onion for each of the first three months, and then spends half that amount on onion for each of the next two months. The average expense for onion, in rupees per kg, for the family over these 5 months is closest to

(a) 18	(b) 26
(a) 16	(4) 20

- (c) 16 (d) 20
- 2. The amount Neeta and Geeta together earn in a day equals what Sita alone earns in 6 days. The amount Sita and Neeta together earn in a day equals what Geeta alone earns in 2 days. The ratio of the daily earnings of the one who earns the most to that of the one who earns the least is CAT 2021

 (a) 7:3
 (b) 11:3
 (c) 11:7
 (d) 3:2
- 3. From a container filled with milk, 9 litres of milk are drawn and replaced with water. Next, from the same container, 9 litres are drawn and again replaced with water. If the volumes of milk and water in the container are now in the ratio of 16 : 9, then the capacity of the container, in litres, is **CAT 2021**
- 4. A person buys tea of three different qualities at ₹ 800, ₹ 500, and ₹ 300 per kg, respectively, and the amounts bought are in the proportion 2 : 3 : 5. She mixes all the tea and sells one-sixth of the mixture at ₹ 700 per kg. The price, in INR per kg, at which she should sell the remaining tea, to make an overall profit of 50%, is CAT 2021
 (a) 692
 (b) 688
 (c) 653
 (d) 675
- If a certain weight of an alloy of silver and copper is mixed with 3 kg of pure silver, the resulting alloy will have 90% silver by weight. If the same weight of the initial alloy is mixed with 2 kg of another alloy which has 90% silver by weight, the resulting alloy will have 84% silver by weight. Then, the weight of the initial alloy, in kg, is CAT 2021

 (a) 3
 (b) 2.5
 - (c) 4 (d) 3.5
- 6. The total of male and female populations in a city increased by 25% from 1970 to 1980. During the same period, the male population increased by 40% while the female population increased by 20%. From 1980 to 1990, the female population increased by 25%. In 1990, if the female population is twice the male population, then the percentage increase in the total of male and female populations in the city from 1970 to 1990 is CAT 2021

 (a) 68.75
 (b) 68.50
 (c) 68.25
 (d) 69.25
- 7. Two alcohol solutions, A and B, are mixed in the proportion 1:3 by volume. The volume of the mixture is then doubled by adding solution A such that the resulting mixture has 72% alcohol. If solution A has

60%	alcohol,	then	the	percentage	of	alcohol	in
solutio	on B is			· · · · · · · · · · · · · · · · · · ·	CAT	2020	

(a) 94% (b (c) 90% (c

(b) 92% (c) 89%

- A sum of money is split among Amal, Sunil and Mita so that the ratio of the shares of Amal and Sunil is 3:2, while the ratio of the shares of Sunil and Mita is 4:5. If the difference between the largest and the smallest of these three shares is Rs 400, then Sunil's share, in rupees, is CAT 2020
- A solution, of volume 40 litres, has dye and water in the proportion 2 : 3. Water is added to the solution to change this proportion to 2 : 5. If one-fourths of this diluted solution is taken out, how many litres of dye must be added to the remaining solution to bring the proportion back to 2 : 3?
- 10. An alloy is prepared by mixing three metals A, B and C in the proportion 3 : 4 : 7 by volume. Weights of the same volume of the metals A, B and C are in the ratio 5 : 2 : 6. In 130 kg of the alloy, the weight, in kh, of the metal C is CAT 2020

 (a) 70
 (b) 48
 - (d) 48 (d) 96

(c) 84

- 11. 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?
 - (a) 7 (b) 8 (c) 9 (d) 10 (CAT 2019
- 12. In an examination, Rama's score was one-twelfth of the sum of the scores of Mohan and Anjali. After a review, the score of each of them increased by 6. The revised scores of Anjali, Mohan, and Rama were in the ratio 11:10:3. Then Anjali's score exceeded Rama's score by CAT 2019

 (a) 26
 (b) 32
 (c) 24
 (d) 35
- 13. The strength of a salt solution is p% if 100 ml of the solution contains p grams of salt. If three salt solutions A, B, C are mixed in the proportion 1 : 2 : 3, then the resulting solution has strength 20%. If instead the proportion is 3 : 2 : 1, then the resulting solution has strength 30%. A fourth solution, D, is produced by mixing B and C in the ratio 2:7. The ratio of the strength of D to that of A is: CAT 2018
 (a) 2 : 5

(a) 2:5	(b) 1 : 3
(c) 1:4	(d) 3 : 10

14. The scores of Amal and Bimal in an examination are in the ratio 11 : 14. After an appeal, their scores increase by the same amount and their new scores are in the ratio 47 : 56. The ratio of Bimal's new score to that of his original score is CAT 2018

(a) 3:2
(b) 4 : 3
(c) 5:4
(d) 8:5

- 15. There are two drums, each containing a mixture of paints A and B. In drum 1, A and B are in the ratio 18 : 7. The mixtures from drums 1 and 2 are mixed in the ratio 3 : 4 and in this final mixture, A and B are in the ratio 13 : 7. In drum 2, then A and B were in the ratio

 CAT 2018
 (a) 220 : 149
 (b) 229 : 141
 (c) 239 : 161
 (d) 251 : 163
- 16. Raju and Lalitha originally had marbles in the ratio 4:9. Then Lalitha gave some of her marbles to Raju. As a result, the ratio of the number of marbles with Raju to that with Lalitha became 5:6. What fraction of her original number of marbles was given by Lalitha to Raju?
 (a) ¹/₄
 (b) 7/33
 - (c) 1/5 (d) 6/19
- 17. Two types of tea A and B are mixed and then sold at Rs. 40 per kg. The profit is 10% if A and B are mixed in the ratio 3 : 2, and 5% if this ratio is 2 : 3. The cost prices per kg of A and B are in the ratio CAT 2018

 (a) 21 : 25
 (b) 19 : 24
 - (c) 18:25 (d) 17:25
- 18. Bottle 1 contains a mixture of milk and water in 7 : 2 ratio and Bottle 2 contains a mixture of milk and water in 9 : 4 ratio. In what ratio of volumes should

the liquids in Bottle 1 and Bottle 2 be combined to obtain a mixture of milk and water in 3 : 1 ratio? CAT 2017

- (a) 27 : 14 (b) 27 : 13 (c) 27 : 16 (d) 27 : 18
- 19. 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: CAT 2017

 (a) 1 : 1
 (b) 8 : 7
 (c) 4 : 3
 (d) 6 : 5
- Suppose, C1, C2, C3, C4, and C5 are five companies. The profits made by C1, C2, and C3 are in the ratio 9 : 10 : 8 while the profits made by C2, C4, and C5 are in the ratio 18 : 19 : 20. If C5 has made a profit of Rs 19 crore more than C1, then the total profit (in Rs) made by all five companies is:

CAT 2017

(a) 438 Crore (b) 435 Crore (b) 348 Crore (d) 345 Crore

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Answer Key							
1. i) (1,2) ii) (16/7, 30/7)	2. 50	3. i) (1,2,3) ii) (97, -10, 12)	4. 96	5. 20	6. (2, 3)		
7. (6, 4)	8. 25	9. 48	10. a) D, b) d	11. 54	12. D		
13. Six	14. Five	15. 16	16. 36	17. C	18. 17.5		
19. 50	20. 35	21. D	22. A	23. C	24. B		
25. D	26. 3:2	27. C	28. B	29. B	30. D		
31. A	32. A	33. 12:15:20	34. A	35. B	36. B		
37. C	38. C	39.i) 540, 360, 270 ii) 260, 390, 520	40. D	41. C	42. D		
43. A	44. D	45. D	46. B	47.2100	48. 56:99:69		
49. 28%	50. A	51. B	52. D	53. Q	54. C		
55. 9	56. D	57. D	58. B	59. b ³ /c ³	60. B		
61. 4/5	62. D	63. B	64. a) 1017 b) 12	65. C	66. A		
67. 3√3	68. D	69. 24000	70. 5	71. B	72. A		
73. 10800	74. 17	75. B	76. B	77. B	78. C		
79. B	80. C	81. B	82. A	83. A	84. C		
85. 8							

1

Answer Key (Past year Questions)

1. A	2. B	3. 45	4. B	5. A	6. A
7. B	8. 800	9. 8	10. C	11. A	12. B
13. B	14. B	15. C	16. B	17. B	18. B
19. A	20. A				