**QUANTITATIVE APTITUDE QUESTIONS AND ANSWERS**

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| **1) A man divides Rs.8600 among 5 sons,4 daughters and 2 nephews. If each daughter receives four times as much as each nephew, and each son receives five times as much as each nephew, how much does each daughter receive?** |
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| Sol : Let the share of each nephew be Rs.x |
| Then, share of each daughter = Rs.(4x); share of each son = Rs.(5x). |
| So, 5 \* 5x + 4 \* 4x + 2 \* x = 8600 |
| => 25x + 16x + 2x = 8600 => 43x = 8600 |
| **=> x = 200. Therefore, Share of each daughter = Rs. (4 \* 200) = Rs.800** |
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| **2) Kumar spends 75% of his income. His income is increased by 20% and he increased his expenditure by 10%. Find the percentage increase in his savings.** |
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| Sol : Let original income = Rs. 100. Then, expenditure = Rs.75 and savings = Rs. 25. |
| New income = Rs.120 & New expenditure = Rs.[110/100 \* 75] = Rs.165/2 |
| New savings = Rs.[120-165/2] = Rs.75/2 |
| Increase in savings = Rs.[75/2 - 25] = Rs. 25/2 |
| **Therefore, Increase% = [25/2 \* 1/25 \* 100]% => 50%** |

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| **3) A man sells an article at a profit of 25%. If he had bought it at 20% less and sold it for Rs.10.50 less, he would have gained 30%. Find the cost of the article.** |
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| Sol: Let the C.P. be Rs,x. |
| First S.P. = 125% of x = 125/100x = 5x/4; |

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| 2nd S.P. = 80% of x = 80/100x = 4x/5 |
| 2nd S.P. = 130% of 4x/5 = [130/100 \* 4x/5] = 26x/25 |
| => 5x/4 - 26x/25 = 10.50 |
| => 21x/100 = 10.50 =>x=[10.50 \* 100 / 21] => 50 |
| **Hence, C.P. = Rs. 50** |
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| **4) A is twice as good as workman as B and together they finish a piece of work in 18 days. In how many days will A alone finish the work?** |
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| Sol: (A's 1 day's work) : (B's 1 day's work) = 2:1 |
| (A+B)'s 1 day's work = 1/18. |
| Therefore A's 1 day's work = [1/18 \* 2/3] = 1/27. |
| **Hence, A alone can finish the work in 27 days.** |

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| **5) Two pipes A and B can fill a tank in 36 min. and 45 min. respectively. A water pipe C can empty the tank in 30 min. First A and B are opened. After 7 minutes, C is also opened. In how much time, the tank is full?** |
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| Sol: Part filled in min. = 7[1/36 + 1/45] = 7/20 |
| Remaining part = [1-7/20] = 13/20 |
| Net part filled in 1 min. when A,B and C are opened = [1/36 + 1/45 - 1/30] = 1/60 |
| Now, 1/60 part is filled in 1 min. |
| 13/20 part is filled in [60 \* 13/20] = 39 min. |
| **Therefore, Total time taken to fill the tank = (39+7)min. => 46 min.** |
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| **6) From a group of boys and girls 15 girls leave. There are then left 2 boys for each girl. After this, 45 boys leave. There are then 5 girls for each boy. Find the number of girls in the beginning.** |
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| Sol: Let at present there be x boys. Then number of girls at present = 5x. |
| Before the boys had left : Number of boys = x+45 and number of girls = 5x. |
| => x+45 = 2\*5x =>9x = 45 => x=5. |
| **Hence, number of girls in the beginning = 5x+15 = 25+15 = 40.** |
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| **7) A cricketer has a certain average for 10 innings. In the eleventh inning, he scored 108 runs, thereby increasing his average by 6 runs. His new average is :** |
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| Sol: Let average for 10 innings be x. Then, |
| 10x + 108/11 = x+6 |
| => 11x+66 = 10x+108 => x=42. |
| **Therefore, New Average = (x+6) = 48 runs.** |

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| **8) Present ages of Abi and Suji are in the ratio of 5:4 respectively. Three years hence, the ratio of their ages will become 11:9 respectively. What is Suji's present age in years?** |
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| Sol: Let the present ages Abi and Suji be 5x years and 4x years respectively. |
| Then, 5x+3 / 4x+3 = 11/9 |
| => 9(5x+3) = 11(4x+3) => x=6. |
| **Therefore, Suji's present age = 4x = 24 years.** |
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| **9) The difference between the ages of two person is 10 years. Fifteen years ago, the elder one was twice as old as the younger one. The present age of the elder person is** |
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| Sol: Let the ages be x years and (x+10) years respectively. |
| Then, (x+10) - 15 = 2(x-15) |
| => x-5 = 2x-30 => x=25. |
| **Therefore, present age of the elder person = (x+10) = 35 years.** |
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| **10) Pranav spends 30% of his monthly income on food articles, 40% of the remaining on conveyance and clothes and saves 50% of the remaining. If his monthly salary is Rs.18400, how much money does he save every month?** |
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| Sol: Saving = 50% of (100-40)% of (100-30)% of Rs.18400 |
| => Rs. 50/100 \* 60/100 \* 70/100 \* 18400 => 3864 |

**Therefore, he saves Rs.3864.**

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**11) The profit earned by selling an article for Rs.832 is equal to the loss incurred when the same article is sold for Rs.448. What should be the sale price for making 50% profit?**

 Sol : Let C.P = Rs.x.  Then, 832 - x = x-448  => 2x = 1280 => x=640  => 150% of Rs.640 = Rs. 150/100 \* 640 => Rs.960  

**Therefore, Required S.P = Rs.960**

**12) Salaries of Ranjani and Sudha are in the ratio 2:3. If the salary of each in increased by Rs.4000, the new ratio becomes 40:57. What is the Sudha's present salary?**

  Sol : Let the original salaries of Ranjani and Sudha be Rs.2x and Rs.3x respectively. Then,  = 2x+4000/3x+4000 => 40/57  => 57(2x+4000) = 40(3x+4000)  => 6x = 68000 =>3x=34000

**Sumit's present salary = (3x+4000) = Rs. (34000 + 4000) = Rs.38000**

**13) Karthik started a business investing Rs.9000. After 5 months, Shyam joined with a capital of Rs.8000. If at the end of the year, they earn a profit of Rs.6970, then what will be the share of Shyam in the profit?**

  Sol: Karthik : Shyam = (9000 \* 12) : (8000 \* 7)  => 108:56 => 27:14  => 6970 \* 14/41 = 2380

**Therefore, Shyam's share = Rs.2380.**

**14) A and B can do a piece of work in 45 days and 40 days respectively. They began to do the work together but A leaves after some days and then B completed the remaining work in 23 days. The number of days after which A left the work was**

  Sol: (A+B)'s 1 day's work = [1/45 + 1/40] = 17/360  => Work done by B in 23 days = 1\*23/40 = 23/40  => Remaining work = 1-23/40 = 17/40  => Now, 17/360 work was done by (A+B) in 1 day.  => 17/40 work was done by (A+B) in 1\*360/17\*17/40 = 9 days.

**Therefore, A left after 9 days.**

**15) 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**

 Sol: Work done by the waste pipe in 1 minute  => 1/15 - [1/20+1/24]  => 1/15-11/120 = -1/40  => volume of 1/40 part = 3 gallons.

**Therefore, Volume of whole = (3\*40)gallons = 120 gallons.**

**16) If the man walks at the rate of 5 kmph, he misses a train by 7 minutes. However, if he walks at the rate of 6 kmph, he reaches the station 5 minutes before the arrival of the train. Find the distance covered by him to reach the station.**

  Sol: Let the required distance be x km.  Difference in the times taken at two speeds = 12 min = 1/5 hr.  => x/5 - x/6 = 1/5  => 6x-5x = 6 => x=6

**Hence, the required distance is 6 km.**

**17) A train when moves at an average speed of 40 kmph, reaches its destination on time. When its average speed becomes 35 kmph, then it reaches its destination 15 minutes late. Find the length of the journey**

 Sol: Difference between timings = 15 min = 1/4 hr  Let the length of journey be x km  Then, x/35 - x/40 = 1/4  => 8x-7x = 70

**Therefore, x=70 km.**

**18) A train 125 m long passes a man, running at 5 kmph in the same direction in which the train is going, in 10 seconds. The speed of the train is**

 Sol: Speed of the train relative to man = [125/10]m/sec = [25/2]m/sec  => [25/2 \* 18/5]km/hr = 45 km/hr  Let the speed of the train be x kmph.  Then, relative speed = (x-5) kmph

**Therefore, x-5 = 45 or x=50 kmph.**

**19) Suresh borrowed some money at the rate of 6% p.a. for the first three years, 9% p.a. for the next five years and 13% p.a. for the period beyond eight years. If the total interest paid by him at the end of 11 years is Rs.8160, how much money did he borrow?**

  Sol: Let the sum be Rs.x. Then,  = [x\*6\*3/100] + [x\*9\*5/100] + [x\*13\*3/100] = 8160  =>18x+45x+39x = (8160\*100)  => 102x = 816000

**Therefore, x=8000.**

**20) Hari invested an amount of Rs.8000 in a fixed deposit scheme for 2 years at compound interest rate of 5 p.c.p.a. How much amount will Hari get on maturity of the fixed deposit?**

 Sol: = Rs.[8000\*(1+5/100)2]  => Rs.[8000\*21/20\*21/20]

**=Rs.8820.**

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| **21) What will be the cost of gardening 1 metre broad boundary around a rectangular plot having perimeter of 340 metres at the rate of Rs.10 per square metre?** |
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| Sol : 2(l+b) = 340 |
| Area of the boundary [(l+2)(b+2)-lb] |
| => 2(l+b)+4 = 344 |
| **Therefore, Cost of gardening = Rs.(344\*10) = Rs.3440** |
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| **22) A cow is tethered in the middle of a field with a 14 feet long rope. If the cow grazes 100 sq.ft. per day, then approximately what time will be taken by the cow to graze the whole field?** |
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| Sol : Area of the field grazed = [22/7\*14\*14]sq.ft. = 616 sq.ft. |
| Number of days taken to graze the field = 616/100 days |
| **=> 6 days(approx.).** |
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| **23) A park square in shape has a 3 metre wide road inside it running along its sides. The area occupied by the road is 1764 square metres. What is the perimeter along the outer edge of the road?** |
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| Sol: Let the length of the outer edge be x metres. Then, length of the inner edge =(x-6)m. |
| => x2-(x-6)2 = 1764 |
| => x2-(x2-12x+36) = 1764 |
| => 12x = 1800 => x=150. |
| **Required perimeter = (4x)m = (4\*150)m = 600m.** |
| **24) The diameter of the driving wheel of a bus in 140 cm. How many revolutions per minute must the wheel make in order to keep a speed of 66 kmph?** |
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| Sol: Distance to be covered in 1 min. = [66\*1000/60]m = 1100m |
| Circumference of the wheel = [2\*22/7\*0.70]m = 4.4m. |
| **Number of revolutions per min. = 1100/4.4 = 250** |
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| **25) A sum of money at simple interest amounts to Rs.720 after 2 years and to Rs.1020 after a further period of 5 years. The sum is :** |
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| Sol: S.I. for 5 years = Rs.(1020-720) = Rs.300 |
| S.I. for 2 years = Rs.(300/5)\*2 = Rs.120. |
| **Therefore, Principal = Rs.(720-120) = Rs.600.** |

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