MATHS

BOOKS - ARIHANT SSC MATHS (HINGLISH)

ALLIGATIONS

Example

1. The average weight of a class of 40 students is 30 and the average weight of a class of 20

students is 15. Find the average weight of both the combined classes :

A. 20

B. 25

C. 17.5

D. 15

Answer: B

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2. If the average weight of a class of students is 15 and the average weight of another class of students is 30, then find the ratio of the students of the first class to the another class of 30 students when the average weight of both the classes is 25 :

A. $1:2$

B. $2:1$

C. $1:3$

D. $3:4$

Answer: A

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3. The average weight of girls is 15 and the average weight of boys is 30 and the average weight of boys and girls both is 25. If the number of boys are 12, then the number of girls is :

A. 4

B. 6

C. 10

D. 18

Answer: B

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4. The ratio of number of girls to number of boys is 1 : 2. If the average weight of the boys is 30 kg and the average weight of both the boys and girls be 25 kg, then the average weight of the girls is :

A. 15 kg

B. 20 kg

C. 35 kg

D. 40 kg

Answer: A

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5. Two varieties of soda water with different prices is mixed in the ratio of 2 : 3. The price of first soda water is Rs. 10 per litre while the

price of second soda water is Rs. 15 per litre, respectively. The average price of the mixture (per litre) is :

A. Rs. 12

B. Rs. 13

C. Rs. 14

D. Rs. 15

Answer: B

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6. 5 kg of superior quality of sugar is mixed with 25 kg of inferior quality sugar. The price of superior quality and inferics quality sugar is Rs. 18 and Rs. 12 respectively. The average price per kg of the mixture is :

A. Rs. 13

B. Rs. 15

C. Rs. 18

D. Rs. 21

Answer: A

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7. 16 litres of kerosene is mixed with 5 litres of petrol. The price of kerosene is Rs. 12 per litre and the price of petrol is Rs. 33 per litre. The average price of the mixture per litre is :

A. Rs. 15

B. Rs. 17

C. Rs. 23

D. Rs. 27

Answer: B

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8. Amit travels 30 minutes at the speed of 25 km/hr. Further he travels 20 minutes at the speed of 40 km/hr. Find his average speed.

A. 25 km/hr

B. 30 km/hr

C. 31 km/hr

D. none of these

Answer: C

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9. A milkman has two types of milk. In the first container the percentage of milk is 80% and in the second container the percentage of milk is 60%. If he mixes 28 litres of milk of the first container to the 32 litres of milk of the second container, then the percentage of milk in the mixture is :

A. 63.99

B. 69.33

C. 72.5

D. 75.2

Answer: B

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10. Modern electronic shop sold the 30% hardware at the profit of 50% and 90% software at the profit of 10%. The average

profit percent of the Modern electronic shop is, if it sells only these two kinds of things :

A. 15

B. 20

C. 25

D. 45

Answer: B

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11. Avinash covered 150 km distance in 10 hours. The first part of his journey he covered by car, then he hired a rickshaw. The speed of car and rickshaw is 20 km/hr and 12 km/hr respectively. The ratio of distances covered by car and the rickshaw respectively are :

A. $2:3$

B. $4:5$

C. $1:1$

D. none of these

Answer: C

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12. A mixture of rice is sold at Rs. 3.00 per kg. This mixture is formed by mixing the rice of Rs. 2.10 and Rs. 2.52 per kg. What is the ratio of price of cheaper to the costlier quality in the mixture if the profit of 25% is being earned.

A. $5:2$

B. $2:7$

C. $2:5$

D. $15:8$

Answer: C

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13. A milkman has 20 liters of milk. If he mixes 5 liters of water, which is freely available, in 20 liters f pure milk. If the cost of pure milk is rs 18 per litre, then the profit of the milkman, when he sells all the mixture at cost price is:

A. 20%

B. 25%

C. 33.33%

D. 18%

Answer: B

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14. In what ratio should freely available water and a premium priced water be mixed so that

after selling the mixture at the cost price a profit of $33.33\ \%$ is made?

A. $1:4$

B. $1:3$

C. $2:3$

D. $3:4$

Answer: B

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15. In what ratio should freely available water be mixed with the wine worth Rs. 60 per litre so that after selling the mixture at Rs. 50 per litre, the profit will be 25%?

A. $1:2$

B. $2:3$

C. $3:4$

D. $4:5$

Answer: A

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16. A mixture of water and milk contains 80% milk. In 50 litres of such a mixture, how many litres of water is required to increase the percentage of water to, 50%?

A. 20

B. 15

C. 30

D. none of these

Answer: C

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17. In a 50 litre mixture of water and milk, water is only 20%. The milkman gives 10 litre of this mixture to a customer and then he adds up 10 litres of pure water in the remaining mixture. The percentage of water in the final mixture is :

A. 84%

B. 74%

C. 26%

D. 36%

Answer: D

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18. There are three types of milk, Parag, Amul and Nestle. The ratio of fat to the non-fat contents in milk is 4 : 5, 5 : 6, 6 : 7 respectively. If all these three types of milk is mixed in equal

quantity, the ratio of fat to the non-fat contents in the mixture will be :

A. 1751 : 2110

B. 175 : 543

C. $3:5$

D. $10:18$

Answer: A

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19. Vijay purchased two different kinds of alcohol. In the first mixture the ratio of alcohol to water is 3 : 4 and in the second mixture it is 5 : 6. If he mixes the two given mixtures and makes a third mixture of 18 litres in which the ratio of alcohol to water is 4 : 5, the quantity of first mixture (whose ratio is 3 : 4) is required to make the 18 litres of the third kind of mixture is :

A. 6

B. 7

C. 8

D. 9

Answer: B

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20. Some amount out of Rs. 6000 was lent out at 10% per annum and the rest amount at the rate 20% per annum and thus in 4 years the total interest from both the amounts collected was Rs. 3400. What is the amount

which was lent out at the rate of 10% per annum?

A. Rs. 2500

B. Rs. 2800

C. Rs. 3200

D. Rs. 3500

Answer: D

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21. From the 50 litres of milk, 5 litres of milk is taken out and after it 5 litres of water is added to the rest amount of milk. Again 5 litres of mixture of milk and water is drawn out and it was replaced by 5 litres of water. If this process is continued similarly for the third time, the amount of milk left after the third replacement :

A. 45 L

B. 36.45 L

C. 40.5 L

D. 42.5 L

Answer: B

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22. From a tank of petrol, which contains 200 litres of petrol, the seller replaces each time with kerosene when he sells 40 litres of petrol (or its mixture). Everytime he sells out only 40 litres of petrol (pure or impure). After replacing the petrol with kerosene 4th time,

the total amount of kerosene in the mixture is

:

A. 81.92 l

B. 96 l

C. 118.08 l

D. none of these

Answer: C

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23. From a container of wine, a thief has stolen 15 litres of wine and replaced it with same quantity of water. He again repeated the same process. Thus in three attempts the ratio of wine and water became 343 : 169. The initial amount of wine in the container was :

A. 75 litres

B. 100 litres

C. 150 litres

D. 120 litres

Answer: D

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24. A jar was full with honey. A person used to draw out 20% of the honey from the jar and replaced it with sugar solution. He has repeated the same process 4 times and thus there was only 512 gm of honey left in the jar, the rest part of the jar was filled with the sugar solution. The initial amount of honey in the jar was :

A. 1.25 kg

B. 1 kg

C. 1.5 kg

D. none of these

Answer: A

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Exercise

1. How much Pepsi at Rs. 6 a litre is added to 15 litre of 'dew' at Rs. 10 a litre so that the price of the mixture be Rs. 9 a litre?

A. 5

B. 8

C. 10

D. none of these

Answer: A

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2. In a municipal parking there are some two wheelers and rest are 4 wheelers. If wheels are counted, there are total 520 wheels but the incharge of the parking told me that there are only 175 vehicles. If no vehicle has a stepney, then the no. of two wheelers is :

A. 75

B. 100

C. 90

D. 85

Answer: C

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3. In my pocket there are Rs. 25 consisting of only the denominations of 20 paise and 50 paise. Thus there are total 80 coins in my pocket. The no. of coins of the denomination of 50 paise is :

A. 30

B. 70

C. 50

D. 25

Answer: A

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4. There are some shepherds and their sheep in a grazing field. The no. of total heads are 60 and total legs are 168 including both men and sheep. The no. of sheep is :

A. 18

B. 26

C. 24

D. 36

Answer: C

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5. In the 75 litres of mixture of milk and water, the ratio of milk and water is 4 : 1. the quantity

of water required to make the ratio of milk and water 3 : 1 is :

A. 1 litre

B. 3 litres

C. 4 litres

D. 5 litres

Answer: D

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6. In my office the average age of all the female employees is 21 years and that of male employees is 32 years, where the average age of all the (male and female) employees is 28 years. The total no. of employees in my office could be :

A. 35

B. 78

C. 231

D. 90

Answer: C

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7. A car agency has 108 cars. He sold some cars at 9% profit and rest at 36% profit. Thus he gains 17% on the sale of all his cars. The no. of cars sold at 36% profit is :

A. 25

B. 32

C. 35

D. 75

Answer: B

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8. Rs. 69 were divided among 115 students so that each girl gets 50 paise less than a boy. Thus each boy received twice the paise as each girl received. The no. of girls in the class is :

A. 92

B. 42

C. 33

D. 23

Answer: A

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9. In what proportion water be mixed with spirit to gain 12.5% by selling it at cost price?

A. $3:5$

B. $1:8$

C. $2:7$

D. $1:9$

Answer: B

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10. A butler stole wine from a butt of sherry containing 50% of spirit, then he replaced it by different wine containing 20% spirit. Thus there was only 30% strength (spirit) in the

new mixture. How much of the original wine did he steal?

A. $\frac{1}{3}$

B. $\frac{2}{3}$

C. $\frac{1}{2}$

D. $\frac{1}{4}$

Answer: B

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11. Mr. Mittal purchased two steel factories, one in India and other one in Malaysia for total Rs. 72 crores. Later on he sold the Indian factory at 16% profit and Malasian factory at 24% profit. Thus he gained a total profit of 19%. The selling price of Indian factory is :

A. 45 crore

B. 52.2 crore

C. 8.55 crore

D. can not be determined

Answer: B

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12. In a 25 litre mixture of milk and water, the water is only 20%. How many litres of water is required to increase the percentage of water to 90%?

A. 45 litre

B. 70 litre

C. 115 litre

D. 175 litre

Answer: D

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13. A milkman sells the milk at the cost price but he mixes the water (freely available) in it and thus he gains 9.09%. The quantity of water in the mixture of 1 litre is :

A. 83.33 mL

B. 90.90 mL

C. 99.09 mL

D. can't be determined

Answer: A

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14. The price of petrol is Rs. 60 per litre and the price of spirit is Rs. 40 per litre. In what ratio the petrol and spirit be mixed such that

the profit after selling the mixture at Rs. 75 per litre be 25%?

A. $1:1$

B. $3:2$

C. $5:1$

D. such a mixture is not possible

Answer: D

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15. A trader sells total 315 TV sets. He sells black and white TV sets at a loss of 6% and colour TV sets at a profit of 15%. Thus he gains 9% on the whole. The no. of Black and white TV sets, which he has sold, is :

A. 126

B. 216

C. 135

D. 90

Answer: D

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16. In a class of 30 students, the average weight of boys is 20 kg and the average weight of the girls is 25 kg. The fraction of boys out of the total students of the class is :

A. $\frac{4}{5}$

B. $\frac{5}{6}$

C. $\frac{3}{4}$

D. data insufficient

Answer: D

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17. Baniya sells two types of tea viz. Desi Chai and Videshi Chai. He sells Desi Chai at Rs. 18 per kg and incurs a loss of 10% whereas on selling the Videshi Chai at Rs. 30 per kg, he gains 20%. In what proportion should the Desi Chai and Videshi Chai be mixed such that he can gain a profit of 25% by selling the mixture at Rs. 27.5 per kg?

A. $3:2$

B. $2:3$

C. $2:5$

D. $3:5$

Answer: A

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18. The average age of boys in class is 16.66, while the average age of girls is 18.75. Thus the average age of all the 40 students of the class

is 17.5. If the difference between the no. of boys and girls is 8, then the no. of girls in the class is :

A. 12

B. 16

C. 18

D. data insufficient

Answer: B

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19. The ratio of water and alcohol in two different containers is 2 : 3 and 4 : 5. In what ratio we are required to mix the mixtures of two containers in order to get the new mixture in which the ratio of alcohol and water be 7 : 5?

A. $7:3$

B. $5:3$

C. $8:5$

D. $2:7$

Answer: B

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20. The average marks of the students in four sections A, B, C and D together is 60%. The average marks of the students of A, B, C and D individually are 45%, 50%, 72% and 80% respectively. If the average marks of the students of sections A and B together is 48% and that of the students of B and C together

is 60%. What is the ratio of number of students in sections A and D?

A. $2:3$

B. $4:3$

C. $5:3$

D. $3:5$

Answer: B

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21. The diluted wine contains only 8 litres of wine and the rest is water. A new mixture whose concentration is 30%, is to be formed by replacing wine. How many litres of mixture shall be replaced with pure wine if there was initially 32 litres of water in the mixture ?

A. 4

B. 5

C. 8

D. none of these

Answer: B

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22. The average weight of boys in a class is 30 kg and the average weight of girls in the same class is 20 kg. If the average weight of the whole class is 23.25 kg, what could be the possible strength of boys and girls respectively in the same class ?

A. 14 and 26

B. 13 and 27

C. 17 and 27

D. none of these

Answer: B

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23. The shopkeeper mixed 40 kg refined oil with vegetable oil worth Rs. 60 per kg. Thus he gains Rs. 10 after selling the mixture of the two oils. The price of the first oil is :

A. 20

B. 25

C. 45

D. data insufficient

Answer: D

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24. In a mixture of milk and water, there is only 26% water. After replacing the mixture with 7 litres of pure milk, the percentage of milk in

the mixture become 76%. The quantity of mixture is :

A. 65 litre

B. 91 litre

C. 38 litre

D. none of these

Answer: B

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25. The ratio of expenditure and savings is 3 : 2. If the income increases by 15% and the savings increases by 6%, then by how much per cent should his expenditure increases?

A. 25

B. 21

C. 12

D. 24

Answer: B

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26. 4 kg of a metal contains $\frac{1}{5}$ copper and rest is zinc. Another 5 kg of metal contains $\frac{1}{6}$ copper and rest is zinc. The ratio of copper and zinc into the mixture of these two metals :

A. 49 : 221

B. 39 : 231

C. 94 : 181

D. none of these

Answer: A

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27. 450 litres of a mixture of milk and water contain the milk and water in the ratio 9 : 1. How much water should be added to get a new mixture containing milk and water in the ratio 3 : 1?

A. 54

B. 90

C. 45

D. 63

Answer: B

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28. The ratio of petrol and kerosene in the container is 3 : 2 when 10 litres of the mixture is taken out and is replaced by the kerosene, the ratio becomes 2 : 3. The total quantity of the mixture in the container is :

A. 25

B. 30

C. 45

D. cannot be determined

Answer: B

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29. From a container, 6 litres milk was drawn out and was replaced by water. Again 6 litres of mixture was drawn out & was replaced by

the water. Thus the quantity of milk and water in the container after these two operations is 9 : 16. The quantity of mixture is :

A. 15

B. 16

C. 25

D. 31

Answer: A

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