MATHS

BOOKS - PEARSON IIT JEE FOUNDATION

RATIO, PROPORTION AND VARIATION

Example

1. Express 81 : 93 in its simplest form.

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2. Compare the ratios $4:5$ and $18:25$.

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3. Divide Rs. 560 in the ratio $3:4$.

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4. Divide Rs. 780 among three friends, P, Q and R in the ratio $\frac{1}{4}:\frac{1}{3}:\frac{1}{2}$.

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5. If $x : y = 3 : 4$ and $y : z = 6 : 11$, then find $x : y : z$.

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6. If B = 3A and A = C, then find B : C.

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7. In a bag there are coins of Rs. 1, Rs. 2 and Rs. 5 in the ratio $3 : 5 : 7$, respectively. If the total value of the coins in the bag is Rs. 144, find the number of

coins of each and also the total value of Rs. 2 coins.

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8. The ratio of marks obtained by Amal, Bimal and Komal in an examination is $12:8:15$. Find the marks obtained by Bimal and Komal, if Amal scored 15 marks less than that of Komal.

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9. If $\frac{x+y}{p^3-q^3}=\frac{y+z}{q^3-r^3}=\frac{z+x}{r^3-p^3}$, then prove that x + y + z = 0.

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10. If $\frac{a}{b}=\frac{c}{d}=\frac{e}{f}$, then prove that each of these ratio's is equal to $\left(\frac{4a^2+3c^2-7e^2}{4b^2+3d^2-7f^2}\right)^{1/2}$

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11. If $a:b=4:5$, find $\frac{5a-b}{10a+3b}$.

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12. Verify whether 6, 7, 12 and 14 are in proportion or not.

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13. Find the fouth proportional to the numbers, 8, 10 and 12.

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14. Find the mean proportional between 13 and 52.

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15. If 4 taps can fill a tank in 10 hours, then in how many hours can 6 taps fill the same tank ?

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16. In a family, the consumption of power is 120 units or 18 days. Find how many units of power is consumed in 30 days.

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17. If $(7x + 4y) : (7x - 4y) : : (7p + 4q) : (7p - 4q)$,

there show that x , y, p and q are in proportion.

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18. If $\frac{3k + 4l + 6m + 7n}{3k + 4l - 6m - 7n} = \frac{3k - 4l + 6m - 7n}{3k - 4l - 6m + 7n}$

,then show that k, 2m, 4l and 7n are in proportion.

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19. If a, b, c and d are in proportion, then show that

$$\frac{a^3 + 3ab^2}{3a^2b + b^3} = \frac{c^3 + 3cd^2}{3c^2d + d^3}$$

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20. 4 men, each working 6 hours per day can build a wall in 9 days. How long will 6 men, each working 3 hours per day take to finish the same work?

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21. The area of a circle varies with the square of its radius. The area of a circle having radius 3 cm is Ccm^2. Find the area of the circle having redius 9 cm.

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22. The pressure of a gas varies directly as the remperature when volume is kept contant and varies inversely as the volume when temperature is kept constant. The gas occupies volume of 400 ml when the temperature is 160 K and the pressure is 640 Pa. What is the temperature of gas whose volume and pressure are 200 ml and 320 Pa, respectively?

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23. A garrison of 700 men is provisioned for 30 days at the rate of $2\frac{1}{2}$ kg per day per man. If 100 men had left the farrison, then the provisions would have lasted or x days at the rate of $3\frac{1}{2}$ kg per dya per man. Find the value of x . Choose the correct answer from the following options:

A. 18

B. 20

C. 25

D. 15

Answer:

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24. Three positive numbers are in the ratio $1:3:5$. The sum of their squares is 875. Find the sum of the numbers. Choose the correct answer from the following options:

A. 45

B. 90

C. 75

D. 150

Answer:

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25. Two positive numbers x and y satisfy the condition $4x^2 + 25y^2 = 20xy$. Find the value of x : y.

A. $5:2$

B. $2:5$

C. $3:2$

D. $2:3$

Answer: A

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26. There are three numbers such that twice the first number is equal to thrice the second number and four times the third number. Find the ratio of the first , the second and the third numbers.

Choose the correct answer from the following options:

A. $2:3:4$

B. $6:4:3$

C. $4:3:4$

D. $3:4:3$

Answer: B

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27. Rs. 585 is to be divided among A, B and C in the ratio 3 : 4 : 6. By mistake, it is divided in the ratio $\frac{1}{6} : \frac{1}{4} : \frac{1}{3}$. Find the loss incurred to C due to this mistake (in Rs.) . Choose the correct answer from the following options:

A. 10

B. 15

C. 20

D. 25

Answer:

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Very Short Type Questions

1. 200 metres is _____ of a kilometre.

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2. The result obtained after applying componedo to $b:(a-b)::d:(c-d)$ is _____.

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3. The simplest form of $57:72$ is _____ .

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4. If $X=3Y=4Z, \quad \text{then} \quad X:Y:Z =$ _____ .

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5. Which of the two ratios $4:9$ and $5:8$ is greater ?

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6. The inverse ratio of $\frac{1}{8}:4$ is _____ .

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7. The result obtained after applying dividendo to $(a+b):b::(c+d):d$ is _____ .

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8. The compound ratio of $p:r$ and $r:q$ is _____

.

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9. The numbers 4, 7, 8 and 14 are in proportion.

(True/False)

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10. Express the ratio 1.5 litres : 250 ml in the lowest terms.

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11. If P and Q^2 are in direct proportion. If Q doubles then P becomes _____ .

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12. If 10 men can do a certain amount of work in 6 days, 15 men can do the same amount of work in

_____ days.

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13. x varies directly as the cube of y, x is 32 when y is 4, then what is the value of y when x is 108 ?

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14. A varies inversely as the square of B and A is 1, when B is 3. What is the value of B, when A is 3?

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15. Express the ratio $\frac{3}{5} : \frac{7}{9}$ in the lowest terms.

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16. The mean proportional between 4 and 8 is 6. (True/False)

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17. If $7\frac{3}{4} : 11\frac{2}{3} = 93 : (2x + 10)$, then what is the value of x ?

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18. If $x : y = 5 : 6$ and $y : z = 3 : 7$, then find x : z.

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19. If $a : b = 2 : 3$, then find $(3a - b) : (2a + 3b)$.

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20. Two numbers are in the ratio $3 : 4$ When 7 is added to each, the ratio becomes $4 : 5$ Find the numbers.

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21. What is the compounded ratio of $6\frac{1}{2}:8\frac{2}{3}$ and $3\frac{3}{4}:5\frac{1}{3}$?

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22. If (x + 2) , 3, (3x-4) and 6 are in proportion, Find x .

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23. Find the fourth proportional of 4, 9 and 12.

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24. Write a ratio equal to 7 : 9 in which antecedent is 63.

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25. If $\frac{a}{b} = \frac{c}{d} = \frac{e}{f} = \frac{2}{5}$, then $\frac{3a + 4c + 9e}{3b + 4d + 9f} =$ _____ .

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26. If (3a+2b) : (5a+7b) = 1:2 , then find a : b.

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27. Arrange the ratios $4:5, 6:7, 2:3$ and $10:11$ in the increasing order of their magnitude.

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28. A certain sum of money is distributed among A, B and C in the ratio of $\frac{1}{2}:\frac{1}{3}:\frac{1}{4}$ and B gets Rs.

120.

Find the shares of A and C.

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29. When a = 3, 5 , 8,10,..., b=9, 15, 24, 30, ..., then a and b are in _____ .

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30. What number must be subtracted from each of the numbers 32, 38, 17 and 20, so that the terms formed will be in proportion ?

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Short Answer Type Questions

1. The number of boys and girls in a class are in the ratio of $3:4$ Find the strength of the class if there are 10 more girls than there are boys.

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2. The number A, A+2, A+12 and A+ 22 are in proportion. Find A.

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3. If $\frac{a^3+2ab^2}{2a^2b+b^3}=\frac{123}{136}$, then find the value of $a:b$

.

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4. P, Q and R have to share 52 apples among themselves such that P gets thrice as many applies as Q gets and Q gets thrice as many as R gets. Find the number of apples R must get.

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5. The ratio of the present ages of a father and his son is $3:1$. The sum of their ages after five years is 58. Find the ratio of their ages 3 years ago.

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6. The ratio of the present ages of Raju and his wife is $5:4$. Which of the following cannot be the ratio of their ages 20 years hence ?

A. $11:10$

B. $6:5$

C. $23:20$

D. $13:10$

Answer: A::C

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7. The mass of a liquid (in grams) varies directly with its volume (in cm^3). A liquid would have a mass of 20 grams if its volume is 10 cm^3). Find the mass of the liquid in grams, if its volume is 8 cm^3).

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8. The ratio of the present ages of Rupa and her daughter is $7:3$. When Rupa was 26 years old, her daughter was 6 years old . Find the present age of Rupa. (in years)

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9. Solve : $\frac{\sqrt{10+3x}+\sqrt{10-3x}}{\sqrt{10+3x}-\sqrt{10-3x}}=3.$

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10. Find $\frac{x+2p}{x-2p}+\frac{x+2q}{x-2q}$, when $\mathrm{x}=\frac{4pq}{p+q}$.

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11. The volume (V) of a mass of gas varies directly as its absolute temperature (T) and inversely as the pressure (P) applied to it. The gas occupies a volume of 300 ml, when the temperature is 210 K and pressure is 150 Pa. What is the temperature of gas whose volume and pressure are 200 ml and 250 Pa respectively?

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12. The volume of a sphere (V) varies directly as the cube of its radius. The volume of the sphere of radius 3 cm is $36\pi cm^3$. What is the volume of a sphere of radius 15 cm?

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13. The ratio of the rens digit and the units digit of a two digit number is $1:2$ .How many two digit number satisfy this condition?

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14. The ratio of the monthly earnings of A and B is $3:2$. The ratio of the monthly expenditures of A and B is $4:3$ A saves Rs. 300 each month. Which of the following cannot be the monthly savings of B ? (in Rs.)

A. 180

B. 195

C. 165

D. 205

Answer: D

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15. If $\frac{2p+5q}{2r+5s}=\frac{4p-3q}{4r-3s}$, then find the relation between p, q, r and s.

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Essay Type Questions

1. There are two boxes, red and white in colour. The ratio of the number of chocolates in the white box to the number of biscuits in the red box is $3:2$ and the ratio of the number of biscuits in the white

box to the number of chocolates in the red box is $3:4$. If the ratio of the total number of chocolates and biscuits in the white box to the total number of chocolates and biscuits in the red box is $15:16$. Find the ratio of the total number of chocolates to the total number of biscuits in the two boxes.

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2. A father distributed Rs. 12250 among his four sons A, B, C and D such that

$$\frac{\text{A's share}}{\text{B's share}} = \frac{\text{B's share}}{\text{C's share}} = \frac{\text{C's share}}{\text{D's share}} = \frac{3}{4}.$$

Then find the share of C.

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3. Some amount is to be divided between X and Y in the ratio of $3:4$ But due to wrong calculation, it was found that X got one-seventh of the total amount more than his expected share. Find the share of Y got an amount of Rs. 480.

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4. If $\frac{x}{y+z}=\frac{y}{z+x}=\frac{z}{x+y}$, then find the value of each fraction.

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5. The LCM of two coprime numbers is 1,302. If one of the numbers is 42, what is the other number? in detail

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Leval 1

1. If $a:b=5$ and $b:c=16:25,$ then find $a:b:c.$

A. $20:25:16$

B. $25:20:16$

C. $25:16:20$

D. $20:16:25$

Answer: D

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2. P and Q have some coins with them. The ratio of the numbers of coins with P and Q is $7:8$. Q has 5 more coins than P has. Find the number of coins with Q .

A. 72

B. 40

C. 48

D. 80

Answer: B

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3. The numbers $x-4, 4, x-2$ and $x+10$ are in proportion. Find x.

A. 8

B. 10

C. 6

D. 12

Answer: C

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4. If $qr : pr : pq = 1 : 4 : 7$, then find $\frac{p}{qr} : \frac{q}{pr}$.

A. $4 : 1$

B. $1 : 4$

C. $1 : 16$

D. $16:1$

Answer: D

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5. What number must be added to each term of the ratio $9:11$, so that it becomes $4:5$.

A. 1

B. 2

C. -2

D. -1

Answer: D

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6. A purse contains Rs. 50, Rs.10 and Rs. 5 notes in the ratio $6:3:7$ and total amount in the purse is Rs. 730. Find the number of Rs. 5 notes in the purse.

A. 7

B. 14

C. 21

D. 28

Answer: B

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7. If $p:q:r:s=3:4:7:8$ and $p+s=55$, then find q + r.

A. 33

B. 55

C. 44

D. 66

Answer: B

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8. A metal X is 15 times as donse as matal Z and a metal Y is 8 times as dense as metal Z. In what ratio should these two metals be mixed to get an alloy which is 13 times as dense as metal Z?

A. $2:5$

B. $2:3$

C. $3:2$

D. $5:2$

Answer: D

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9. What must be added to each of the numbers 3, 7, 8 and 16 so that resulting numbers are in proportion ?

A. 4

B. 3

C. 2

D. 1

Answer: C

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10. The cost of 570 bags of rice is Rs. 17,100. Find the number of bags of rice which can be bought for Rs. 19, 200.

A. 720

B. 800

C. 640

D. 600

Answer: C

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11. If x, y and z are in continued proportion, then

$(x+y+z)(x-y+z)$ = _____ .

A. $x^2 - y^2 + z^2$

B. $x^2 - y^2 - z^2$

C. $x^2 + y^2 + z^2$

D. None of these

Answer: C

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12. Seven friends planned a tea party. The expenses per boy in rupees is numerically 1 less than the number of girls and the expenses per girl in rupees is numerically 1 less than the number of boys. If the ratio of the total expenses of the boys and the girls is $8:9$, then what is the expenditure of each boy?

A. Rs.2

B. Rs.3

C. Rs.1

D. Rs.4

Answer: A

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13. If a, b and c are in continued proportion, then $a^2 : b^2$ is

A. $a^2 : c^2$

B. $a : b$

C. $a : c$

D. $b : c$

Answer: C

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14. A metal X is 16 times as dense as matal Z and metal Y is 7 times as dense as metal Z . In what ratio should X and Y be mixed to get an alloy12 times as dense as metal Z?

A. $2:3$

B. $5:2$

C. $5:4$

D. $6:5$

Answer: C

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15. The velocity of a freely falling body when it strikes the ground is directly proportional to the square of the time taken by it to strike the ground. It takes 5 seconds to strike the ground, with a velocity of 10 m/sec. If it strikes the ground with the velocity of 40 m/sec, then for how long would it have travelled ?

A. 7.5 sec

B. 2.5 sec

C. 10 sec

D. 20 sec

Answer: C

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16. The ratio of the number of students in two classrooms, C_1 and C_2, is 2 : 3 . It is observed that after shifting ten students from C_1 to C_2, the ratio is 3 : 7. Further, how many students have to be shifted from $C_2 \text{to} C_1$ for the new ratio to become 9 : 11 ?

A. 10

B. 15

C. 20

D. 8

Answer: B

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17. Rakesh attended a party, where a lady asked him his age. He said that ten years ago the sum of his and his daughter's ages was 40 years, and the ratio of his present age to that of his daughter is 7 : 3. What is the present age of Rakesh in years?

A. 42

B. 28

C. 25

D. 30

Answer: A

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18. The mean proportional between two numbers is 56. If the third proportional of the same two numbers is 448, then find the sum of the two numbers.

A. 180

B. 440

C. 240

D. 140

Answer: D

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19. The speed at which a person runs is directly proportional to the bloodpressure in his body. If the speed of a person is 2 m/sec his blood

pressure would be 120 units. Find the blood pressure in unis of a person running at 8.5 m/sec.

A. 510

B. 425

C. 340

D. 5950

Answer: A

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20. A father want to divide Rs. 22,515 among his four sons P, Q, R and S such that $\frac{\text{P's share}}{\text{Q's share}} = \frac{\text{Q's share}}{\text{R's share}} = \frac{\text{R's share}}{\text{S's share}} = \frac{1}{2}$.

Find the share of Q.

A. 1507

B. 3002

C. 6004

D. $12,008$

Answer: B

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21. The mean proportion of two numbers is 24 and their third proportion is 72. Find the sum of the two numbers.

A. 11

B. 24

C. 32

D. 80

Answer: D

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22. If 40 men can complete a job in 6 days, then find the number fo days taken by 60 men to complete it.

A. 3

B. 10

C. 12

D. 4

Answer: D

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23. The cost of a precious stone varies as the cube of its weight. The stone broke into 3 pieces whose weights are in the ratio $1:2:3$. As a result its cost reduces . If the cost of the unbroken stone is Rs. 96, 336, then find the loss incurred due to breakage.

A. $Rs.\ 80,280$

B. $Rs.\ 16,056$

C. $Rs.\ 40,140$

D. $Rs.\ 8028$

Answer: A

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24. A diamond falls and breaks into pieces whose weights are in the ratio $2:3:5$. The value of the diamond is directly proportional to the square of its weight. Find the loss incurred, if the actual cost of the diamond is Rs. 96, 000 . (in Rs.)

A. $36, 480$

B. $59, 520$

C. $72, 960$

D. None of these

Answer: B

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25. In a monthly unit test, the marks scored by Bunny and Sunny are in the ratio of $10:7$ and those scored by Bharat and Sunny are in the ratio of $8:9$. If Bharat 112 marks, then find the marks scored by Bunny.

A. 170

B. 190

C. 200

D. 180

Answer: D

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26. If $\frac{x^3 + 4xy^2}{4x^2y + y^3} = \frac{15}{16}$, then find x : y.

A. $2:3$

B. $3:2$

C. $4:3$

D. $3:4$

Answer: B

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27. The ratio of the tens digit and the units digit of a two digits number is $2:3$. How many possible values can it assume?

A. 3

B. 4

C. 2

D. 5

Answer: A

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28. The least integer which when subtracted from the antecedent and added to the consequent of the ratio $9:8$ gives a ratio less than the ratio $15:26$ is

A. 2

B. 3

C. 4

D. 1

Answer: B

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29. Ram wanted to distribute a cartain amount between his two children Lava and Kusha in the ratio $5:7$ But it was found that due to incorrect calculacions Lava got one-sixth of the total amount more than what he should get. Find the share of Kucha, in rupees, if Lava got Rs. 560 in all.

A. 300

B. 350

C. 400

D. 450

Answer: C

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30. A bag contains one rupee, 50 paise and 25 paise coins. The ratio of the number of 1 rupee coins to that of 50 paise coins is $5:9$ and the ratio of the number of 50 paise conins to that of 25 paise coins is $2:1$. Find the value of the 50 paise

coins in the bag if the total value of the bag is Rs. 425.

A. Rs. 254

B. Rs. 180

C. Rs. 78

D. Cannot be determined

Answer: B

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Leval 2

1. Seven years ago the ratio of the ages of P and Q (in years) was $7:6$. Which of the following cannot be the ratio of their ages 6 years from now ?

A. $13:12$

B. $15:14$

C. $13:12$

D. $16:15$

Answer: A

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2. The ratio of the monthly incomes of Ram and Shyam is $3:4$ and the ratio of their monthly expenditures is 4 : 5`. If Shyam saves Rs. 400 per month, which of the following cannot be the savings of Ram? (In Rs./month)

A. 290

B. 280

C. 270

D. 310

Answer: D

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3. The ratio of the present ages of Anand and Bals is $8:3$. When Anand was 30 years old, Bala was 5 years old. Find the present age of Bala. (In years)

A. 10

B. 12

C. 15

D. 20

Answer: C

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4. There are three sections A, B and C in class VIII of a school. The ratio of the number of students in A, B and C is $2:3:4$. The section which has neither the maximum number of students has a strength of 30. Find the total strength of the three sections.

A. 63

B. 81

C. 72

D. 90

Answer: D

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5. In a solution of 45 litres of milk and water, $40\ \%$ is water. How many litres of milk must be added to become the ratio of milk and water $5:3$?

A. 8

B. 3

C. 7

D. 6

Answer: B

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6. Find the triplicate ratio of $(2y - x) : (2x - y)$, if $x : y = 4 : 3$.

A. $64 : 125$

B. $27 : 64$

C. $8 : 125$

D. $27 : 125$

Answer: C

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7. Nine years ago A's age and B's age were in the ratio $5:7$. Which of the following cannot be the ratio of their ages 5 years from now ?

A. $11:13$

B. $13:19$

C. $21:25$

D. $15:16$

Answer: B

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8. A vacies directly with x^2. If x = 2 or then A=20.

Than A if x = 8.

A. 48

B. 120

C. 64

D. 320

Answer: D

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9. The force applied on a stationary body varies directly with the acceleration with which it starts to move. If a force of 10 N is applied on a stationary body, it starts to move with an acceleration of 2 m/$\sec^2$. Find the force (in N) to be applied on the body at which starts to move with an acceleration of 4 m/$\sec^2$.

A. 30

B. 20

C. 40

D. 50

Answer: B

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10. The ratio of the present ages of Ram and Shyam is $3:2$. Which of the following cannot be the ratio of their ages 20 years ago?

A. $8:5$

B. $17:10$

C. $9:5$

D. $7:5$

Answer: D

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11. Ninety coins are to be distributed among P,Q and R such that P gets twice as many coins as Q gets and Q gets thrice as many coins as R gets. Find the number of coins R gets.

A. 6

B. 3

C. 10

D. 9

Answer: D

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12. P varies inversely with $\sqrt{y}$. If y = 2, then P=40. If p=20 then find y.

A. $\sqrt{8}$

B. 8

C. 4

D. $\sqrt{2}$

Answer: C

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13. The monthly electricity bill raised by the municipal corporation consists of two parts-a fixed charge for providing the service and a variable charge which is directly proportional to the number of watts of power consumed. An amount of Rs. 500 is charged for consuming 125 watts in a particular month . The of 500 watts is $21:25$. How much is the fixed charge per month?

A. Rs. 125

B. Rs. 200

C. Rs.250

D. Rs. 500

Answer: C

View Text Solution

14. A solution of 30 litres of milk and water, has 70% milk. How many litres of water must be added so that the volumes of milk and water will be in the ratio $3:2$?

A. 6

B. 3

C. 5

D. 4

Answer: C

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15. If $\frac{a+b}{xa+yb} = \frac{b+c}{xy+yc} = \frac{c+a}{xc+ya}$ where $x+y \neq 0$ and $a+b+c \neq 0$, then each of these ratios is equal to

A. 1

B. $\frac{1}{x+y}$

C. $\frac{2}{x+y}$

D. $\frac{2}{a+b}$

Answer: C

View Text Solution

16. The ratio of sugar and other ingredients in the biscuits of three bakeries - Mongunies, Karachi and Baker's Inn are $5:4, 13:12$ and $29:24$ respectively. The biscuits of which bakery are the sweetest ?

A. Mongunies

B. Karachi

C. Baker's inn

D. All the three types of biscuits are equally sweet.

Answer: A

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17. Rs.x is divided among three persons Mr Vaayu, Mr Jala and Mr Agni in the ratio $3:4:7$. If the share

of Mr Jala is Rs. 5600 , then find the value of x.

A. $15,400$

B. $16,800$

C. $18,200$

D. $19,600$

Answer: D

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18. The ratio of the monthly incomes of Mr Anand and Mr Milind is $9:10$ and the ratio of their

monthly savings is $9:10$. If the monthly expenditure of Mr Milind is Rs. 15,000, then find the monthly expendicure of Mr Anand (in Rs.).

A. $Rs.\ 12,000$

B. Rs. 9000

C. Rs. 8500

D. $Rs.\ 13,500$

Answer: D

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19. The ratio of the present ages of Mr Dhuryodhana and Mr Dhushyasna is $5:4$. Which of the following cannot be the ratio of their ages 5 years ago?

A. $4:3$

B. $3:2$

C. $9:7$

D. $8:7$

Answer: D

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20. What must be added to both the terms of $x : y$ so that the resultant ratio is inverse of the given ratio $(x \neq y)$?

A. y-x

B. x-y

C. $-(x-y)$

D. x+y

Answer: C

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Leval 3

1. Nine friends had a tea party. All boys took only coffee and all girls took only tea. The cost per cup of coffee in rupees is numerically 2 less than the number of girls and the cost per cup of tea in rupees is numerically 2 less than the number of boys. If the ratio of the total expenses of the boys and the girls is $5:6$, then what is the cost of each coffee? (In Rs.)

A. 2

B. 5

C. 7

D. 3

Answer: A

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2. If $x : y = 3 : 5$, find the duplicate ratio of $(3x + y) : (5x - y)$.

A. $49 : 25$

B. $25 : 9$

C. $36 : 25$

D. $49:36$

Answer: A

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3. The ratio of the number of students in two classrooms A and B is $3:2$. If ten students shift form A to B, the ratio becomes $7:8$. Now how many students must shift from A to B in order for the ratio to become $8:7$?

A. 5

B. 10

C. 15

D. 20

Answer: A

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4. There are some students in an auditorium, some of them are dressed in white and the others are drcssed in bluc. The ratio of the number of boys dressed in white to the number of girls dressed in blue is $4:3$ and the ratio of the total number of

girls dressed in white to the number of boys dressed in blue is $4:5$. The ratio of the total number of boys and girls dressed in white to the total number of boys and girls dressed in blue is $12:13$. Find the ratio of the total number of boys to that of girls in the auditorium.

A. $13:15$

B. $19:17$

C. $14:11$

D. Cannot be determined

Answer: C

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5. Eleven friends had a tea party. All boys took only coffee and all girls took only tea. The cost per cup of coffee in rupees is numerically one more than the number of girls and the cost per cup of tea in rupees is numerically equal to the number of boys. If the ratio of the total expenses of the boys and the girls is $7:6$, then what is the cost of each coffee ? (In Rs.)

A. 4

B. 5

C. 6

D. 7

Answer: D

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6. The ratio of the present ages of Mrs. Anoukika and Mrs. Mythili is $5:6$. After 6 years, Mrs. Anoukika would reach the present age of Mrs. Mythili. Find the sum of their present ages (in years).

A. 66

B. 44

C. 33

D. 15

Answer: A

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7. The incomes of A and B are in ratio $4:3$. The expenditures of A and B are in the ratio $5:2$. If B saves Rs. 3000, then which of the following cannot be the sacvings of A ?

A. Rs. 1500

B. Rs.2500

C. Rs.3500

D. Rs. 4500

Answer: D

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8. If a + b varies directly with a - b, then which of the following vary directly?

A. a and b

B. $a^2 + b^2$ and $a^2 - b^2$

C. both (a) and (b)

D. None of these

Answer: C

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9. If 20 men take 15 days to complete a certain amount of work working at 10 hours per day, then how many more men are required to complete twice the previous work in 10 days working at 12 hours a day?

A. 10

B. 20

C. 30

D. 40

Answer: C

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10. The ratio of the amounts with Mr Umar and Mr Gumar is $3:4$. If Mr Gumar gives Rs. 5 to Mr Umar, then the ratio of the amounts with Uma and

Gumar is $4:3$. Mr Umar gives Rs. 5 to Mr Gumar. Find the ratio of the amounts with them.

A. $3:5$

B. $2:5$

C. $4:5$

D. $1:5$

Answer: B

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