MATHS

BOOKS - PEARSON IIT JEE FOUNDATION

PERCENTAGES

Example

1. Express 36% as a fraction.

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2. Express $64\,\%$ as a decimal.

3. Express $\dfrac{3}{20}$ as per cent.

4. Find $36\,\%$ of 30.

5. x is what per cent of y?

6. if x is $80\ \%$ of y then y is what percentage of x?

7. What per cent of 3.6 km is 360 metres?

8. Find the number whose 30% is 36.

9. By what per cent is the sum of Rs. 100 more than the sum of Rs. 90?

10. If anils salary is 20% less than Raju salary then by what percent is Raju's salary more than that of Anil ?

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11. Mohit's weight is 40 kg and Rohan's weight is 35kg. By what per cent is Rohan's weight less than the of Mohit ?

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12. In an examinatin, Mohit secured 60% of the maximum marks, which is more than the pass marks by 45 marks. Find the maximum marks in the examinaion if the pass mark is 45.

13. A solution of 150 litres contains 60% of milk and the rest is water. How much water must be added to the above about solution

such that the resulting mixture contains 50% of water (in litres) ?

14. In an election there are three contestants A, B and C. A secured 30% of the votes and B secured 60% of the remaining votes. If C secured 14000 votes, then by how many votes did the winner win the election ?

15. Ramu's salary increased by 20% and then decreased by 30% The effective change in his salary was Rs. 8560. Find his original salary (in Rs.)

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16. In a certain month, Amar donated 8% of his monthly income to a charity and deposited 25% of the remaining in a bank. He was left with Rs.27600. Find his monthly income (in Rs.)

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17. P , Q and R contested in an election. All the votes polled were valid. P got $30\,\%$ of the total votes. For every 40 total votes, Q got 18 votes.The winner got 6000 more votes than the person who received the least number of votes. Find the total number of votes polled.

18. Calculate the cost of living indext for the year 2008 taking 2000 as the base year from the following information.

Commodity	Quantity consumed (in kg)	Rate (in ₹ per kg)	
		2000	2008
Rice	25	16	20
Oil	5	40	80
Pulses	10	25	40
Vegetables	15	10	16

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19. Express 36% as a fraction.

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20. Express 64% as a decimal.

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21. Express $\dfrac{3}{20}$ as per cent.

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22. Find 36% of 30.

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23. x is what per cent of y ?

24. y is what percentage of x ?

25. What percentage of 3.6km is 360m?

26. Find the number whose $30\ \%$ is 36.

27. By what per cent is the sum of Rs. 100 more than the sum of Rs. 90?

28. If anils salary is 20% less than Raju salary then by what percent is Raju's salary more

than that of Anil ?

29. Mohit's weight is 40 kg and Rohan's weight is 35kg. By what per cent is Rohan's weight less than the of Mohit ?

30. In an examinatin, Mohit secured 60% of the maximum marks, which is more than the

pass marks by 45 marks. Find the maximum marks in the examinaion if the pass mark is 45.

31. A solution of 150 litres contains 60% of milk and the rest is water. How much water must be added to the above about solution such that the resulting mixture contains 50% of water (in litres) ?

32. In an election there are three contestants A, B and C. A secured 30% of the votes and B secured 60% of the remaining votes. If C secured 14000 votes, then by how many votes did the winner win the election ?

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33. Ramu's salary increased by 20% and then decreased by 30% The effective change in his

salary was Rs. 8560. Find his original salary (in Rs.)

34. In a certain month, Amar donated 8% of his monthly income to a charity and deposited 25% of the remaining in a bank. He was left with Rs.27600. Find his monthly income (in Rs.)

35. P , Q and R contested in an election. All the votes polled were valid. P got 30% of the total votes. For every 40 total votes, Q got 18 votes.The winner got 6000 more votes than the person who received the least number of votes. Find the total number of votes polled.

36. Calculate the cost of living indext for the year 2008 taking 2000 as the base year from

the following information.

Commodity	Quantity consumed (in kg)	Rate (in ₹ per kg) 2000	Rate (in ₹ per kg) 2008
Rice	25	16	20
Oil	5	40	80
Pulses	10	25	40
Vegetables	15	10	16

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Very Short Type Questions

1. Express 25% as a decimal

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2. Express $\dfrac{6}{25}$ as per cent.

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3. 50% of 2000 is _____

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4. Express 20% as a fraction

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5. What percentage is equal to $\dfrac{3}{8}$?

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6. What per cent of 52 kg is 25 kg ?

▶ **Watch Video Solution**

7. What per cent of 1 litre is 200 ml

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8. If 75% of a number is 6, then what percentage of that number s 1 ?

9. If 2% of x is 20, then x=

10. $x\%$ of y is equal to $y\%$ of x.

11. If $\left(\dfrac{3}{8} \text{of x} \right) \% \; is \dfrac{3}{4},$ then find x.

12. If $x \%$ of 25 is2, $then x =$ _____

13. $a \% (b + c)$ is equal to $b \% of (a + b).$

(True/False)

14. If X is 30% of Z and Y is 60% of Z, then X

is what percentage of Y?

15. $20\%\ of\ x + 25\%\ of\ 20 = 25 of 40$, find x.

16. If I am 10% taller whan you, then you are 10% shorter than me. (True/False)

17. In a class there are 16 girls out of 40 students in total. Girls as a percentage of total students are _____

18. If $(0.15 \times x)$ is equal to 12.5% of 3, then find x.

19. If a is 2 times of b, then b is 100% more than a.

(True /False)

20. Saving 20% of your pocket money of Rs. C means spending 80% of your pocket money of Rs. X? (True/ False)

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21. The enroment of members in a club increased from 500 to 550, Find the percentage increase in enorlment.

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22. The price of an article is increased twice in succession, each by 10%. The result is _____% increase.

23. If $x:y = 3:4$, then x is 60% of y. (True/False)

24. Last year Mohit's computer fee was 10% of his total school fees. This year Mohit's comouter fee is 15% of his total school fees. There is a 5% increase in Mohit's computer fees this year when copared to that of last year. (Ture/Cannot say)

25. If my marks in maths are less than your markes in Maths by 20% then your marks in

Maths are 25% more than my marks in Maths. (True/False)

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26. The price of wheat has increased by 25% . Find the reduction in consumption so that there is no change in the expenditure.

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27. If 20% of the student in a school are girls and the number of boys is 3060, then find the total strength of the school.

28. In an examination, x and y secured 732 and 864 marks respectively. If y secured 72% marks then find the percentage of marks secured by x.

29. If $A:B = 4:6$ and $B:C = 3.4,$ then by what percentage is C more than A.

30. In an examination, Salim secured 52% marks and got 114 marks more than the pass marks and A zam secured 39% marks and got 36 marks more than the pass mark. Find

(a) The pass mark.

(b) The pass percentage.

Short Type Questions

1. A venor puchased some spples, out of which 6% were rotten. If the number of rotten apples was 51, then how many apples did he buy ?

2. In an election only two candidates Ram and Shyam contested, Ram got 75% of the total valid votes. 6% of the polled votes were declared invalid. If 64200 votes were polled, then find the number of valid votes polled in favour of Shyam.

3. If A is 20% more than C and B is 60% 1 more than C, then A' is what percentage of B?

4. What fractin is equal to $\dfrac{5}{5^3 \cdot 8 \cdot 9}\,\%$?

5. A number when increased by $40\,\%$ becomes 42. What is the number ?

6. A had Rs. 160 and B had Rs 140. A spent 20% and B spent 30% of the money they had. Who spent more money ?

7. Due to a rise of 12% in the price of mangoes a dealer gets 27 kg less for Rs. 24750. Find

(a) The new price per kg of mangoes.

(b) The orginal price per kg of mangoes (approximately).

8. 175 litres of a solution contains 88% of acid and the rest water. How many liters of water must be added such that the resulting mixture contains 23% of water ?

9. A's weight is 20% more than B's weight, whose weight is 30% more than C's weight. Then A's weight is `50% more than C's weight. Verify.

10. Given are there numbers. If the second and the third numbers respectively are 20% and 50% more than the third number, then what percentage is the first of second ?

11. If $33\dfrac{1}{3}\%$ of an AC ticket fare is equal to $66\dfrac{2}{3}\%$ of a non-AC ticket fare, then what percentage of AC ticket fare is equal to non-AC ticket fare ?

12. Ravi earned a sum of Rs. 10800 and donated 40% of it to charity. He give 15% of the remaining amount to Ramu. After giving

25 % of the remaining amount to Anitha, he deposited the rest in a bank. How much money did he deposit in the bank?

13. The manufacturing cost of 10 articles is Rs. 150 Tax on each article is 6 % of the manufacturing cost. Transportation cost comes to Re. 1 per articles. By what per cent is the total cost more than the manufacturing cost ?

14. If $x\%$ of 25 is equal to $y\%$ of 15 and $y\%$ of 15 is equal to 25% of 20, then find the value of x.

15. Rohan and Sohan earn salaries which are in the ratio of $3:4$ respectively. Sohan saves 11% of his salary and Rohan saves 18% of his salary. If Sohan seves Rs.2310, then find

(a) The savings of Rohan

(b) The sum of the salaries of both

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Essay Type Questions

1. A total of 1100 votes were polled in a school election for a school head boy. Among three contestants, the first secured 25% votes more than the second and the third secured 300 votes less than the first. By what percent

of votes was the third contestant defecated by the first contestant?

2. A basket contains apples, guravs and organs. The number of guavas is 60% more than that of apples and the number of oranges is 12.5% less than that of Guaves. If the total number of these fruits is 80, then find the number of oranges.

3. The price of a refrigetor, P is 5 times that of a cooler Q. If then price of P increases by 40% . then what is the change in the total price of the refrigerator and cooler put together ?

4. Raja gave 20% of his income to his daughter, 40% of the remaining to his first son, 30% of the remaining to his second son

finally the remaining Rs 12600 was donated to a charitable trust. Find Raja's income.

5. A shopkeeper sold certain articles. Cost price of each article and the number of articles sold are given below.

Item	Quantity Sold	Cost Price Per Article (in ₹)	
		1996	2006
Fans	100	450	800
Refrigerators	50	8000	10000
Sofa set	130	500	8000
Coolers	190	3000	5000

Calculate the cost of libing index for the year

2006 taking 1999 as the base year (approximately).

Level 1

1. The numer of enrolments in a school has increased from 1800 to 2016. The percentage increase in the enrolments is _____.

A. 10 %

B. 11 %

C. 12 %

D. 13 %

Answer: C

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2. The price of a commodity is increased by

40 % By what per cent should a consumer

reduce his consumption so that his

expenditure on the commodity remains constant ?

A. $25\dfrac{4}{7}$ %

B. $26\dfrac{4}{7}$ %

C. $24\dfrac{4}{7}$ %

D. $28\dfrac{4}{7}$ %

Answer: D

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3. If Ram's salary went up by 25% then by what percent should it by brought down to bing it to its initial value ?

A. 25%

B. 20%

C. 33.33%

D. 37.5%

Answer: B

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4. A number, when decreased by 20 % becomes 136. What is the number ?

A. 160

B. 150

C. 170

D. 140

Answer: C

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5. If 60% of K is 30 less than 75% of K, then what is the value of K ?

    A. 500

    B. 300

    C. 400

    D. 200

Answer: D

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6. The length of a reactangle is increased by 10 % while its breadth is decreased by 10 % . what is the consequent percentage change in the area of the reactangle ?

A. 1 % increase

B. 10 % increase

C. 10 % decrease

D. 1 % decrease

Answer: D

7. In an examination, Ramu and Raje secured 783 marks and 684 marks respectively. If Ramu secured 87 % marks, then the percentage of marks secured by Raje is _____.

A. 75 %

B. 76 %

C. 77 %

D. 78 %

Answer: B

8. In an examination, Ramesh secured 574 marks and Rekha secured 76% of the total marks. If Ramesh secured 82% of the total marks, the difference in their marks is _____.

A. 40

B. 41

C. 42

D. 43

Answer: C

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9. By what per cent will the area f a square change if its side is increased by 10% ?

A. 10% increase

B. 20% increase

C. 10% decrease

D. 21% increase

Answer: D

10. The population of a city increases by 30% every year. If the present population is 338000, then what was the population of the city of two years ago ?

A. 300000

B. 250000

C. 200000

D. 240000

Answer: C

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11. A's expenditure is 20% more than B's expenditure. B's expenditure is 30% less then `C's expenditure. By what percentage is A's expenditure less than C's expenditure ?

A. 16 %

B. 12 %

C. 14 %

D. 18 %

Answer: A

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12. Two numbers x and y, are in the ratio $\frac{5}{6} : \frac{3}{4}$. By what per cent is x more than y ?

A. 10%

B. $9.\overline{09}\%$

C. 12.5%

D. $11.\overline{11}\%$

Answer: D

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13. Ramu save 14% of his salary while Ramesh saves 24%. If both get equal salaries and

Ramesh save Rs. 1440, then Ramu's expenditure is _____.

A. Rs. 5000

B. Rs. 5160

C. Rs. 6000

D. Rs. 7440

Answer: B

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14. The side of square ABD is 20% longer than the side of square PQRS. By what percentage is the area of ABCD more than the area of PQRS?

A. 20%

B. 24%

C. 40%

D. 44%

Answer: D

15. Only two candidates A and B contested in an election. In the total of 20000 votes 10 % were invalid. A won the election by 3600 votes. What percent age of valid votes is secured by B?

A. 45 %

B. 40 %

C. 30 %

D. 35 %

Answer: B

16. Raje's salary was first increased by 10% then decreased by 20% If the latest salary is `Rs 17600, then find his orginal salary.

A. Rs. 15000

B. Rs. 10000

C. Rs. 20000

D. Rs. 18000

Answer: C

17. If A is 50% more than B, then B is less than

A by

    A. $33\frac{1}{3}\%$

    B. 25%

    C. 50%

    D. $66\frac{2}{3}\%$

Answer: A

▶

18. Jacob and Mohan same 20% and 40% of their respective incomes. If their expenditure is equal, then what is the ratio of the incomes of Mohan and Jacob?

A. $1:2$

B. $3:4$

C. $2:1$

D. $4:3$

Answer: D

19. There are 3 numbers. The first and second numbes are 20% and 40% more than the third number. What percentage is the first number of the sum of the second and the third numbers ?

A. 25%

B. 50%

C. 30 %

D. 40 %

Answer: B

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20. Three commodities, their consumption and their pieces in the years 1985 and 1990 are listed below:

Commodity	Consumption	Price in 1985 (in ₹/kg)	Price in 1990 (in ₹/kg)
Rice	90 kg	14.00	18.00
Wheat	150 kg	9.00	9.48
Tea	9 kg	75.00	100.00

The cost of living indext for the year 1990 taking 1985 as the base year is equal to _____.

A. 100

B. 10

C. 120

D. 130

Answer: C

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21. If the area of reatangle is increased by 13% and its breadth is increased by 5%, then what is the percentage increase in its length? (Approximately)

    A. 10 %

    B. 8 %

    C. 18 %

    D. 12 %

Answer: B

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22. A man donated 6 % of his income to a charity and deposited 20 % of the rest in a bank. If he is left with Rs. 14,100, then his income is _____.

A. Rs. 18000

B. Rs. 18250

C. Rs. 18500

D. Rs. 18750

Answer: D

23. madhav's salry is first increased by $x\%$ and then decreased by $x\%$. As a result his salary is decreased by $\dfrac{x^2}{100}\%$ Comment.

A. True

B. False

C. Cannot be determined

D. None of these

Answer: A

24. The quantities consumed and the cost per kg of the commodities for the years 1986 and 1995 are given in the table below:

Item	Quantity Consumed (kg)	Cost per kg (in ₹)	
		In 1986	In 1995
Wheat	34	5	8
Butter	16	30	50
Sugar	4	10	16
Tea	8	80	100
Rice	15	18	20

The cost of living indext for the year 1995 taking 1986 as the base year is equal to _____.

A. 139.00

B. 139.75

C. 193.50

D. 139.25

Answer: B

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25. The price of an article increases by

10 % , 15 % and 20 % in 3 consecutive

weeks. What is the appeoximate overall percentag increase for the 3 weeks ?

A. 45 %

B. 62 %

C. 35 %

D. 52 %

Answer: D

26. If X is 3% of Z and Y is 60% of Z, then X is what percentage of Y ?

    A. 30%

    B. 50%

    C. 100%

    D. 60%

Answer: B

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27. What per cent of 150 is 45?

A. 20 %

B. 30 %

C. 60 %

D. 13.5 %

Answer: B

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28. If 20% of 30% of a certain number is 3000, find the number.

A. 40000

B. 80000

C. 50000

D. 75000

Answer: C

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1. A reductin of 10% in the price of an article enables a dealer to purchase 25 articles more for Rs. 45000. What is the original price of the article ?

   A. Rs. 100

   B. Rs. 150

   C. Rs. 200

   D. Rs. 250

Answer: C

2. The percentag increases in the total number of students of a school over that in the previous year.

Year	Percentage increase
1999-2000	20%
2000-2001	30%
2001-2002	10%

Find the effective percentage increase in the

number of students from 1998-1999 to 2000-2001.

A. 31.6 %

B. 71.6 %

C. 62.6 %

D. 81.6 %

Answer: B

3. A solution of 165 litres contains 80% of acid and the rest water. How much water must be added to the above solution such that the resulting mixture contains 25% water ?

    A. 11 litres

    B. 8 litres

    C. 9 litres

    D. 10 litres

Answer: A

4. Laxma save 10% more than his expenditure and Bhuwan spends 10% more than his savings. If Laxman's saving is 10% more than Bhuwans' expenditure, what is the ratio of incomes of Laxman and Bhuwan?

A. $9 : 10$

B. $100 : 99$

C. $10 : 11$

D. $11 : 10$

Answer: D

5. Madan spends 50% of his income on house hold expenditure and 60% of the remaining on personal expenditure. Of the remaining, he pays 50% towards income tax and saves the reamining Rs. 1200. What is the personal expenditure of Madan?

A. Rs. 1800

B. Rs. 2400

C. Rs. 3600

D. Rs. 4800

Answer: C

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6. In the year 2001, the price of article A is

20 % more than the price of article B. In the

year 2002, the price of article A is 50 % more

than the price of article B. From 2001 to 2002,

if the price of A has increased by 50 % by what per cent has the price of B increased?

A. 0

B. 10

C. 20

D. 25

Answer: C

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7. When the price of an article is increased by 15% the number of articles aold decreases by 20% What is the percentage change in the sales revenue? (Sales revenue = piece of each article X number of articles sold).

    A. 5% increase

    B. 3% decrease

    C. 8% increase

    D. 8% decrease

Answer: D

8. The population of a town increases by 25% annually. If the present population is one crore, then what was the difference between the population 3 years ago and 2 years ago ?

9. Ravi has some money with him. He give 50% of it to Rupa and 30% to Raje and

60% of the remaining was donated to a charity. If he is still left with Rs. 8040, then the money the initially had was _____.

A. Rs. 100000

B. Rs. 100500

C. Rs. 101000

D. Rs. 101500

Answer: B

10. The ratio of boys and girls in a class is $5:3.20\%$ of the boys and 60% of the girls have passed in first class. What percentage of the class has passed in first class ?

A. 35%

B. 32%

C. 34%

D. 33%

Answer: A

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11. There are three quantities A, B and C. B is $16\frac{2}{3}\%$ less than A and C is $14\frac{2}{7}\%$ more than B. By wht per cent is A more than C?

A. 5

B. 6

C. 7

D. 8

Answer: A

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12. A's savings is 30 % less than B's savings, B's savings is 20 % less than C's savings. By what percentage is C's savings more than A's savings ?

A. $63\dfrac{2}{7}$ %

B. $52\dfrac{1}{3}$ %

C. $64\dfrac{3}{5}$ %

D. $78\dfrac{4}{7}$ %

Answer: D

13. If 55% of the teachers in a school are gents and the number of lady teachers in the school is 90, then the total number of techers in the school is

A. 100

B. 150

C. 200

D. 250

Answer: C

14. The population of a city increased at the rate of 20% every year for the last three years. If the present population is 203904, then what was the population of the city 3 years ago ?

    A. 119000

    B. 118000

C. 117000

D. 116000

Answer: B

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15. The total expenditure of a family in 1920 is Rs. 8,000. The cost of living indext for the year 1920 taking 1910 as the base year is 160. Then the expenditure of the family in the year 1910 was _____.

A. Rs. 3000

B. Rs. 4000

C. Rs. 5000

D. Rs. 6000

Answer: C

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16. Kiran's salary was first incrased by 30% and then decreased by 30%. If the latest

salary is Rs. 2275. then what was the original salary of Kiran?

A. Rs. 2275

B. Rs. 2425s

C. Rs. 2600

D. Rs. 2500

Answer: D

17. When the price of an article is increased by $p\%$, then quantity of sales decrease by 10% but sales revenue increases by 10% Find p.

A. 20

B. $22\dfrac{2}{9}$

C. $18\dfrac{2}{11}$

D. 30

Answer: B

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18. The total expenditure of a school on certaion consumable items was found to be Rs. 50650 in the year 1972. If the cost of living index for the year 1975, taking 1972 as the base year is 162.8, then the expenditure of the school in 1975 is

    A. Rs. 82458

    B. Rs. 82458.20

    C. Rs. 82458.40

    D. None of these

Answer: B

19. If two number are in the ratio $1/3 : 1/2$, then by what percentage is the second number more than the first ?

A. 50%

B. $37\frac{1}{2}\%$

C. $33\frac{1}{3}\%$

D. 40%

Answer: A

20. 40% of M is 600 more than 25% of M.

Find M.

A. 2000

B. 3000

C. 4000

D. 5000

Answer: C

21. A has 50% more marbles than B. If A gives 40 marbles to B, then the difference of the number of marbles with both will be 16. Find the number of marbles with B.

A. 192

B. 128

C. Either (a) nor (b)

D. neither (a) nar (b)

Answer: C

22. There are three numbers. The first number is $33\frac{1}{3}\%$ more than the second number and 50% more than the third number. What percentage of the third number is the second number ?

A. 107.5%

B. `112.5%

C. 117.5 %

D. 112.5 %

Answer: B

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23. In a class, the ratio of the number of boys to that of the firls is $11:9.30\%$ of the boys and 20% of the girls passed. Find the percentage of passed students of the class.

A. 23.5 %

B. 24.5 %

C. 28.5 %

D. 122.5 %

Answer: D

24. The price of rice dropped by 25% As a result Sita was able to buy 5 kg more rice for

Rs.240. Find the original price of rice (in Rs./kg).

A. 16

B. 18

C. 15

D. 20

Answer: A

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25. The students of a class wrote an exam. 20% of the boys and 30% of the girls failed in it. The number of boys who passed in it was 30 more than that of girls. A total of 74 students failed in it. Find the strength of the class.

A. 280

B. 300

C. 320

D. 260

Answer: B

Level 3

1. In March Rohan's monthly expenditure was 90% of his monthly income. His monthyl income increased by 30% and his monthly expenditure increased by 20% when compared to the previous month. Find the percentage increase in his montly savings.

A. 130 %

B. 120 %

C. 110 %

D. 125 %

Answer: B

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2. In the year 2000, rice formed 20% of the total food grain production in a country. In the next year, the total food grain production

increased by 20 % and the rice production was 25 % of the total food grain production. What is the increase in the production of rice from 2000 to 2001?

A. 25 %

B. 50 %

C. 40 %

D. 30 %

Answer: B

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3. In school X, the number of boys is more than that of the girls by 40%. In school Y, the number of girls is more than that of boys by 50%. If 50% boys in school X is equal to 70% of girls in school Y, what is the ratio between the number of students of school X and School Y?

    A. $24:25$

    B. $16:174$

    C. $3:4$

D. 36 : 25

Answer: D

Commodity	Quantity (in kg)	Rate per kg (in ₹)	
		Base year 2005	Current year 2007
X	50	17	20
Y	10	50	60
Z	5	30	P

4.

The cost of living indext for the year 2004 considering the base year as 2005 is Rs. 120. Find P.

A. 36

B. 40

C. 45

D. 50

Answer: B

▶ **Watch Video Solution**

5. A manufacturer purchases a second hand machine for Rs. 60000 and spends some amount towards repairs thane its vaue goes up to Rs. 90000. If depreciation is 10% per

annum, what will be the value of the machine after two years ?

A. Rs. 48600

B. Rs. 81000

C. Rs. 67200

D. Rs. 72900

Answer: D

6. The proce of an article increased successively over three consecutive weeks. It increased by 10 % in the first week, 20 % in the second week and 25 % in the third week. Find the effective percentage increase in its price after three weeks.

A. 55 %

B. 65 %

C. 50 %

D. 60 %

Answer: B

7. The ratio of the incomes of P and Q is $5:4$. The ratio of their expenditure is $4:3$ The savings of P more then that of Q by $16\frac{2}{3}\%$. What percentage of his income does P spend ?

A. $52\frac{2}{3}\%$

B. $53\frac{1}{3}\%$

C. $54\frac{1}{3}\%$

D. $51\dfrac{2}{3}\%$

Answer: B

▶ **Watch Video Solution**

1. Express 25% as a decimal

▶ **Watch Video Solution**

2. Express $\dfrac{6}{25}$ as per cent.

▶ Watch Video Solution

3. 50% of 200

▶ Watch Video Solution

4. Express $20\ \%$ as a fraction

▶ Watch Video Solution

5. What percentage is equal to $\dfrac{3}{8}$?

▶ Watch Video Solution

6. What per cent of 52 kg is 26 kg?

▶ Watch Video Solution

7. What per cent of 1 litre is 200 ml

▶ Watch Video Solution

8. If 75% of a number is 6, then what percentage of that number s 1 ?

▶ **Watch Video Solution**

9. If 2% of x is 20, then x=

▶ **Watch Video Solution**

10. $x\%$ of y is equal to $y\%$ of x.

▶ **Watch Video Solution**

11. If $\left(\dfrac{3}{8} \text{of x}\right) \% \ is \dfrac{3}{4},$ then find x.

 Watch Video Solution

12. If x% of 250 is 200, then x=..............

 Watch Video Solution

13. $a \% \ (b + c)$ is equal to $b \% \ of(a + b).$

(True/False)

14. If X is 30% of Z and Y is 60% of Z, then X is what percentage of Y?

15. $20\% \, of \, x + 25\% \, of \, 20 = 25 of 40$, find x.

16. If I am 10% taller whan you, then you are 10% shorter than me. (True/False)

17. In a class there are 16 girls out of 40 students in total. Girls as a percentage of total students are _____

18. If $(0.15 \times x)$ is equal to 12.5% of 3, then find x.

19. If a is 2 times of b, then b is 100% more than a.

(True /False)

20. Saving 20% of your pocket mony of Rs. C means spending 80% of your pocket money of Rs. X?

(Rtue/ False)

21. The enroment of members in a club increased from 500 to 550, Find the percentage increase in enorlment.

22. The price of an article is increased twice in succession, each by 10%. The result is _____% increase.

23. If $x:y = 3:4$, then x is 60% of y. (True/False)

24. Last year Mohit's computer fee was 10% of his total school fees. This year Mohit's comouter fee is 15% of his total school fees. There is a 5% increase in Mohit's computer fees this year when copared to that of last year. (Ture/Cannot say)

25. If my marks in maths are less than your markes in Maths by 20% then your marks in

Maths are 25% more than my marks in Maths. (True/False)

26. The price of wheat has increased by 12%. Find the reduction in consumption so that there is no change in the expenditure.

27. If 20% of the student in a school are girls and the number of boys is 3060, then find the total strength of the school.

▶ **Watch Video Solution**

28. In an examination, x and y secured 732 and 864 marks respectively. If y secured 72% marks then find the percentage of marks secured by x.

▶ **Watch Video Solution**

29. If $A:B = 4:6$ and $B:C = 3.4,$ then by what percentage is C more than A.

▶ **Watch Video Solution**

Test Your Concepts Short Answer Type Questions

1. In an examination, Salim secured 52% marks and got 114 marks more than the pass marks and A zam secured 39% marks and got 36 marks more than the pass mark. Find

(a) The pass mark.

(b) The pass percentage.

2. A venor puchased some spples, out of which 6% were rotten. If the number of rotten apples was 51, then how many apples did he buy ?

3. In an election only two candidates Ram and Shyam contested, Ram got 75% of the total valid votes. 6% of the polled votes were declared invalid. If 64200 votes were polled, then find the number of valid votes polled in favour of Shyam.

4. If A is 20% more than C and B is $60\%1$ more than C, then A' is what percentage of B?

5. What fraction is equal to 5 %?

6. A number when increased by 40% becomes 42. What is the number ?

7. A had Rs. 160n and B had Rs 140. A spent 20% and B spent 30% of the money they had. Who spent more money ?

8. Due to a rise of 12% in the price of mangoes a dealer gets 27 kg less for Rs. 24750. Find

(a) The new price per kg of mangoes.

(b) The orginal price per kg of mangoes (approximately).

▶ **Watch Video Solution**

9. 175 litres of a solution contains 88% of acid and the rest water. How many liters of water must be added such that the resulting mixture contains 23% of water ?

▶ **Watch Video Solution**

10. A's weight is 20% more than B's weight, whose weight is 30% more than C's weitht. Than A's weight is `50% more than C's weight. Verify.

11. Given are there numbers. If the second and the third numbers respectively are 25% and 50% more than the first, then what percentage of the second is the third ?

12. If $33\dfrac{1}{3}\%$ of an AC ticket fare is equal to $66\dfrac{2}{3}$ of a non-AC ticket fare, then what percentage of AC ticket fare is equal to non-AC ticket fare ?

13. Ravi earned a sum of Rs. 10800 and donated 40% of it to charity. He give 15% of the remaining amount to Ramu. After giving

25 % of the remaining amount to Anitha, he deposited the rest in a bank. How much money did he deposit in the bank?

14. The manufacturing cost of 10 articles is Rs. 150 Tax on each article is 6 % of the manufacturing cost. Transportation cost comes to Re. 1 per articles. By what per cent is the total cost more than the manufacturing cost ?

15. If $x\%$ of 25 is equal to $y\%$ of 15 and $y\%$ of 15 is equal to 25% of 20, then find the value of x.

16. Rohan and Sohan earn salaries which are in the ratio of $3:4$ respectively. Sohan saves 11% of his salary and Rohan saves 18% of his salary. If Sohan seves Rs.2310, then find

(a) The savings of Rohan

(b) The sum of the salaries of both

Test Your Concepts Essay Type Questions

1. A total of 1100 votes were polled in a school election for a school head boy. Among three contestants, the first secured 25% votes more than the second and the third secured 300 votes less then the first. By what per cent

of votes was the third contestant defecated by the first contestant?

2. A basket contains apples, guravs and organs. The number of guavas is 60% more than that of apples and the number of oranges is 12.5% less than that of Guaves. If the total number of these fruits is 80, then find the number of oranges.

3. The price of a refrigetor, P is 5 times that of a cooler Q. If then price of P increases by 40%. then what is the change in the total price of the refrigerator and cooler put together ?

4. Raje gave 20% of his incomr to his daughter, 40% of the remaining to his first son, 30% of the remaining to his second son

finally the remaining Rs 12600 was donated to a charitable trust. Find Raje's income.

> ▶ **Watch Video Solution**

5. A shopkeeper sold certain articles. Cost price of each article and the number of articles sold are given below

Item	Quantity Sold	Cost Price Per Article (in ₹)	
		1996	2006
Fans	100	450	800
Refrigerators	50	8000	10,000
Sofa set	130	500	8000
Coolers	190	3000	5000

Calculate the cost of living index for the year 2006 taking 1999 as the base year (approx).

Concept Application Level 1

1. The numer of enrolments in a school has increased from 1800 to 2016. The percentage increase in the enrolments is _____.

    A. 0.1

    B. 0.11

    C. 0.12

D. 0.13

Answer: C

2. The price of a commodity is increased by 40% By what per cent should a consumer reduce his consumption so that his expenditure on the commodity remains constant ?

A. $25\dfrac{4}{7}\%$

B. $26\dfrac{4}{7}\,\%$

C. $27\dfrac{4}{7}\,\%$

D. $28\dfrac{4}{7}\,\%$

Answer: D

▶ **Watch Video Solution**

3. If Ram's salary went up by $25\,\%$ then by what percent should it by brought down to bing it to its initial value ?

A. 0.25

B. 0.2

C. 0.3333

D. 0.375

Answer: B

▶ **Watch Video Solution**

4. A number, when decreased by 20% becomes 136. What is the number ?

A. 160

B. 150

C. 170

D. 140

Answer: C

 Watch Video Solution

5. If 60% of K is 30 less than 75% of K, then what is the value of K ?

A. 5

B. 3

C. 400

D. 200

Answer: D

▶ **Watch Video Solution**

6. The length of a reactangle is increased by 10% while its breadth is decreased by 10%.

what is the consequent percentage change in the area of the reactangle ?

A. 1% increase

B. 10% increase

C. 10% decrease

D. 1% decrease

Answer: D

> ▶ **Watch Video Solution**

7. In an examination, Ramu and Raje secured 783 marks and 684 marks respectively. If Ramu secured 87% marks, then the percentage of marks secured by Raje is _____.

    A. 0.75

    B. 0.76

    C. 0.77

    D. 0.78

Answer: B

8. In an examination, Ramesh secured 574 marks and Rekha secured 76% of the total marks. If Ramesh secured 82% of the total marks, the difference in their marks is _____.

A. 40

B. 41

C. 42

D. 43

Answer: C

9. By what per cent will the area f a square change if its side is increased by 10% ?

    A. 10% increase

    B. 20% increase

    C. 10% decrease

    D. 21% increase

Answer: D

10. The propulation of a city increases by 30% every year. If the persent populatio is 338000, then what was the population of the city of two years ago ?

    A. 300000

    B. 250000

    C. 200000

D. 240000

Answer: C

11. A's expenditure is 20% more than B's expenditure. B's expenditure is 30% less then `C's expenditure. By what percentage is A's expenditure less than C's expenditure ?

A. 0.16

B. 0.12

C. 0.14

D. 0.18

Answer: A

▶ **Watch Video Solution**

12. Two numbers x and y, are in the ratio $\frac{5}{6} : \frac{3}{4}$. By what per cent is x more than y ?

A. 0.1

B. 0.0909

C. 0.125

D. 0.1111

Answer: D

▶ **Watch Video Solution**

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13. Ramu save 14% of his salary while Ramesh saves 24%. If both get equal salaries and Ramesh save Rs. 1440, then Ramu's expenditure is _____.

A. 5000

B. 5160

C. 6000

D. 7440

Answer: B

▶ **Watch Video Solution**

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14. The side of square ABD is 20% longer than the side of square PQRS. By what percentage is the area of ABCD more than the area of PQRS?

A. 0.2

B. 0.24

C. 0.4

D. 0.44

Answer: D

▶ **Watch Video Solution**

15. Only two candidates A and B contested in an election. In the total of 20000 votes 10% were invalid. A won the election by 3600 votes.

What percent age of valid votes is secured by B?

A. 0.45

B. 0.4

C. 0.3

D. 0.35

Answer: B

▶ **Watch Video Solution**

16. Raje's salary was first increased by 10% then decreased by 20% If the latest salary is `Rs 17600, then find his orginal salary.

A. 150

B. 100

C. 200

D. 180

Answer: C

17. If A is 50% more than B, then B is less than A by

A. $33\frac{1}{3}\%$

B. 0.25

C. 0.5

D. $66\frac{2}{3}\%$

Answer: A

▶ **Watch Video Solution**

18. Jacob and Mohan same 20 % and 40 % of their respective incomes. If their expenditure is equal, then what is the ratio of the incomes of Mohan and Jacob?

A. $1:2$

B. $3:4$

C. $2:1$

D. $4:3$

Answer: D

19. There are 3 numbers. The first and second numbes are 20% and 40% more than the third number. What percentage is the first number of the sum of the second and the third numbers ?

A. 0.25

B. 0.5

C. 0.3

D. 0.4

Answer: B

20. Three commodities, their consumption, and their prices in the years 1985 and 1990 are listed below

Commodity	Consumption	Price in 1985 (in ₹/kg)	Price in 1990 (in ₹/kg)
Rice	90 kg	14.00	18.00
Wheat	150 kg	9.00	9.48
Tea	9 kg	75.00	100.00

The cost of living index for the year 1990 taking 1985 as the base year is equal to..............

A. 100

B. 10

C. 120

D. 130

Answer: C

▶ View Text Solution

21. If the area of reatangle is increased by

13% and its breadth is increased by 5%,

then what is the percentage increase in its length? (Approximately)

A. 0.1

B. 0.08

C. 0.18

D. 0.12

Answer: B

22. A man donated 6% of his income to a charity and deposited 20% of the rest in a bank. If he is left with Rs. 14,100, then his income is _____.

    A. 18000

    B. 18250

    C. 18500

    D. 18750

Answer: D

23. madhav's salry is first increased by $x\%$ and then decreased by $x\%$. As a result his salary is decreased by $\dfrac{x^2}{100}\%$ Comment.

A. True

B. False

C. Cannot be determined

D. None of these

Answer: A

24. The quantities consumed and the cost per kg of the commodities for the years 1986 and 1995 are given in the table below:

Item	Quantity Consumed (kg)	Cost per kg (in ₹)	
		In 1986	In 1995
Wheat	34	5	8
Butter	16	30	50
Sugar	4	10	16
Tea	8	80	100
Rice	15	18	20

The cost of living indext for the year 1995 taking 1986 as the base year is equal to _____.

A. 1.39

B. 1.3975

C. 1.395

D. 1.3925

Answer: B

▶ **Watch Video Solution**

25. The price of an article increases by

10%, 15% and 20% in 3 consecutive

weeks. What is the appeoximate overall

percentag increase for the 3 weeks ?

A. 0.45

B. 0.62

C. 0.35

D. 0.52

Answer: D

▶ **Watch Video Solution**

26. If X is 30% of Z and Y is 60% of Z, then X is what percentage of Y?

A. 0.3

B. 0.5

C. 1

D. 0.6

Answer: B

▶ **Watch Video Solution**

27. What per cent of 150 is 45?

A. 0.2

B. 0.3

C. 0.6

D. 0.135

Answer: B

▶ **Watch Video Solution**

28. If 20% of 30% of a certain number is 3000, find the number.

A. 40000

B. 80000

C. 50000

D. 75000

Answer: C

⏵ **Watch Video Solution**

Concept Application Level 2

1. A reductin of 10% in the price of an article

enables a dealer to purchase 25 articles more

for Rs. 45000. What is the original price of the article ?

A. 100

B. 150

C. 200

D. 250

Answer: C

2. The percentag increases in the total number of students of a school over that in the previous year.

Year	Percentage increase
1999–2000	20%
2000–2001	30%
2001–2002	10%

Find the effective percentage increase in the number of students from 1998-1999 to 2000-2001.

A. 0.316

B. 0.72

C. 0.62

D. 0.82

Answer: B

▶ **Watch Video Solution**

3. A solution of 165 litres contains 80% of acid and the rest water. How much water must be added to the above solution such that the resulting mixture contains 25% water ?

A. 11 litres

B. 8 litres

C. 9 litres

D. 10 litres

Answer: A

▶ **Watch Video Solution**

4. Laxma save 10% more than his expenditure

and Bhuwan spends 10% more than his

savings. If Laxman's saving is 10% more than

Bhuwans' expenditure, what is the ratio of incomes of Laxman and Bhuwan?

A. $9 : 10$

B. $100 : 99$

C. $10 : 11$

D. $11 : 10$

Answer: D

▶ **Watch Video Solution**

5. Madan spends 50 % of his income on house hold expenditure and 60 % of the remaining on personal expenditure. Of the remaining, he pays 50 % towards income tax and saves the reamining Rs. 1200. What is the personal expenditure of Madan?

A. 1800

B. 2400

C. 3600

D. 4800

Answer: C

6. In the year 2001, the price of article A is 20% more than the price of article B. In the year 2002, the price of article A is 50% more than the price of article B. From 2001 to 2002, if the price of A has increased by 50% by what per cent has the price of B increased?

A. 0

B. 10

C. 20

D. 25

Answer: C

▶ Watch Video Solution

7. When the price of an article is increased by

15 % the number of articles aold decreases by

20 % What is the percentage change in the

sales revenue? (Sales revenue = piece of each article X number of articles sold).

    A. 5% increase

    B. 3% decrease

    C. 8% increase

    D. 8% decrease

Answer: D

▶ **Watch Video Solution**

8. The population of a town increases by 25% annually. If the present population is one crore, then what was the difference between the population 3 years ago and 2 years ago ?

    A. 2500000

    B. 1280000

    C. 1560000

    D. 2000000

Answer: B

9. Ravi has some money with him. He give 50 % of it to Rupa and 30 % to Raje and 60 % of the remaining was donated to a charity. If he is still left with Rs. 8040, then the money the initially had was _____.

A. 100000

B. 100500

C. 101000

D. 101500

Answer: B

10. The ratio of boys and girls in a class is $5:3.20\%$ of the boys and 60% of the girls have passed in first class. What percentage of the class has passed in first class ?

A. 0.35

B. 0.32

C. 0.34

D. 0.33

Answer: A

11. There are three quantities A, B and C. B is $16\frac{2}{3}\%$ less than A and C is $14\frac{2}{7}\%$ more than B. By wht per cent is A more than C?

A. 5

B. 6

C. 7

D. 8

Answer: A

▶ **Watch Video Solution**

12. A's savings is 30% less than B's savings, B's savings is 20% less than C's savings. By what percentage is C's savings more than A's savings ?

A. $63\dfrac{2}{7}\%$

B. $52\dfrac{1}{3}\%$

C. $64\dfrac{3}{5}\%$

D. $78\dfrac{4}{7}\%$

Answer: D

▶ **Watch Video Solution**

13. If 55% of the teachers in a school are gents and the number of lady teachers in the

school is 90, then the total number of techers in the school is

A. 100

B. 150

C. 200

D. 250

Answer: C

14. The population of a city increased at the rate of 20% every year for the last three years. If the present population is 203904, then what was the population of the city 3 years ago ?

A. 1190

B. 1180

C. 1170

D. 1160

Answer: B

15. The total expenditure of a family in 1920 is Rs. 8,000. The cost of living indext for the year 1920 taking 1910 as the base year is 160. Then the expenditure of the family in the year 1910 was _____.

A. 3000

B. 4000

C. 5000

D. 6000

Answer: C

16. Kiran's salary was first incrased by 30% and then decreased by 30%. If the latest salary is Rs. 2275. then what was the original salary of Kiran?

A. 2275

B. 2425

C. 2600

D. 2500

Answer: D

▶ **Watch Video Solution**

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17. When the price of an article is increased by $p\%$, then quantity of sales decrease by 10% but sales revenue increases by 10% Find p.

A. 20

B. $22\dfrac{2}{9}$

C. $18\dfrac{2}{11}$

D. 30

Answer: B

▶ **Watch Video Solution**

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18. The total expenditure of a school on certaion consumable items was found to be Rs. 50650 in the year 1972. If the cost of living

index for the year 1975, taking 1972 as the base year is 162.8, then the expenditure of the school in 1975 is

A. 82458

B. 82458.2

C. 82458.4

D. 82458.1

Answer: B

▶ Watch Video Solution

19. If two number are in the ratio $1/3 : 1/2$, then by what percentage is the second number more than the first ?

A. 0.5

B. $37\frac{1}{2}\%$

C. $33\frac{1}{3}\%$

D. 40 %

Answer: A

20. 40% of M is 600 more than 25% of M. Find M.

A. 2000

B. 3000

C. 4000

D. 5000

Answer: C

▶ Watch Video Solution

21. A has 50% more marbles than B. If A gives 40 marbles to B, take the difference of the number of marbles with both will be 16. Find the number of marbles with B.

A. 192

B. 128

C. 127

D. 190

Answer: C

22. There are three numbers. The first number is $33\frac{1}{3}\%$ more than the second number and 50% more than the third number. What percentage of the third number is the second number?

    A. 1.075

    B. 1.125

    C. 1.175

    D. 1.225

Answer: B

23. In a class, the ratio of the number of boys to that of the firls is $11:9.30\%$ of the boys and 20% of the girls passed. Find the percentage of passed students of the class.

   A. 0.235

   B. 0.245

   C. 0.285

D. 0.255

Answer: D

24. The price of rice dropped by 25% As a result Sita was able to buy 5 kg more rice for Rs.240. Find the original price of rice (in Rs./kg).

A. 16

B. 18

C. 15

D. 20

Answer: A

▶ Watch Video Solution

25. The students of a class wrote an exam. 20% of the boys and 30% of the girls failed in it. The number of boys who passed in it was 30 more than that of girls. A total of 74

students failed in it. Find the strength of the class.

A. 280

B. 300

C. 320

D. 260

Answer: B

▶ **Watch Video Solution**

Concept Application Level 3

1. In March Rohan's monthly expenditure was 90% of his monthly income. His monthyl income increased by 30% and his monthly expenditure increased by 20% when compared to the previous month. Find the percentage increase in his montly savings.

A. 1.3

B. 1.2

C. 1.1

D. 1.25

Answer: B

2. In the year 2000, rice formed 20% of the total food grain production in a country. In the next year, the total food grain production increased by 20% and the rice production was 25% of the total food grain production. What is the increase in the production of rice from 2000 to 2001?

A. 0.25

B. 0.5

C. 0.4

D. 0.3

Answer: B

▶ **Watch Video Solution**

3. In school X, the number of boys is more than that of the firls by 40%. In school Y, the number of girls is more than that of boys by

50 %. If 50 % boys in school X is equal to 70 % of girls in school Y, what is the ratio between the number of students of school X and School Y?

A. $24 : 25$

B. $16 : 17$

C. $3 : 4$

D. $36 : 25$

Answer: D

Commodity	Quantity (in kg)	Rate per kg (in ₹)	
		Base year 2005	Current year 2007
X	50	17	20
Y	10	50	60
Z	5	30	P

4.

The cost of living indext for the year 2004 considering the base year as 2005 is Rs. 120. Find P.

A. 36

B. 40

C. 45

D. 50

Answer: B

5. A manufacturer purchases a second hand machine for Rs. 60000 and spends some amount towards repairs thane its vaue goes up to Rs. 90000. If depreciation is 10% per annum, what will be the value of the machine after two years ?

A. 48600

B. 81000

C. 67200

D. 72900

Answer: D

▶ **Watch Video Solution**

6. The proce of an article increased successively over three consecutive weeks. It increased by 10% in the first week, 20% in the second week and 25% in the third week.

Find the effective percentage increase in its price after three weeks.

A. 0.55

B. 0.65

C. 0.5

D. 0.6

Answer: B

7. The ratio of the incomes of P and Q is $5:4$. The ratio of their expenditure is $4:3$ The savings of P more then that of Q by $16\frac{2}{3}\%$. What percentage of his income does P spend ?

A. $52\frac{2}{3}\%$

B. $53\frac{1}{3}\%$

C. $54\frac{1}{3}\%$

D. $51\frac{2}{3}\%$

Answer: B