MBA Fastrack 2025
QUANTITATIVE APTITUDE
Percentage

DPP: 2

Q1 A school has 220 students from classes 1 to 4. Class 1 has 15% of students, class 2 has the same number of students in class 3, and class 4 has 35% of students. Find the number of students in class 3.
(A) 45 (B) 55
(C) 65 (D) 75

Q2 A man spent 30% of his income on rent, 20% on food, 15% on travel, and 10% on entertainment. If he spent an additional 4,000 rupees on malls, he is still left with 8,000 rupees. Find his income (in rupees).
(A) 30,000 (B) 36,000
(C) 40,000 (D) 48,000

Q3 Arun's salary increased by 2 lakhs. The tax percentage also increased from 15% to 25%. If he pays 70,000 more tax than usual, find his new salary (in lakhs).
(A) 3 (B) 4
(C) 5 (D) 6

Q4 A man living in Hyderabad shifts to Delhi after accepting a 20% salary increase. Later, he shifts to Lucknow with a 30% salary increase. If the man is currently earning 19,040 rupees more than what he was earning in Hyderabad, find his salary in Delhi in (rupees).
(A) 34,000 (B) 36,000
(C) 45,696 (D) 40,800

Q5 A father distributes his wealth among his four children such that the eldest child gets 30%, the second child gets 30% of the remaining wealth, and the two youngest sons share the wealth in a ratio of 2:5. If the richest son has 23,100 rupees more than the third richest, find the amount received by the eldest son.
(A) 48,000 (B) 49,500
(C) 51,000 (D) 52,500

Q6 In a company, 30% of the people are aged above 60. If the number of people who are aged below 60 is 30% more than those who are aged above 60 and 558 people are aged exactly 60, Find the total number of employees in the company.
(A) 1800 (B) 2200
(C) 2400 (D) 3000

Q7 A person saves 30% of his monthly income. If in a certain month, his expenditure increases by 30%, By what percent should his income increase such that the amount of money he saves remains the same?
(A) 30 (B) 25
(C) 24 (D) 21

Q8 A team has played 60 matches and won 25% games. If they win 80% of all their upcoming games, their loss percentage would be 40. Find the total number of games played by the team.
(A) 105 (B) 115
(C) 165 (D) 180

Q9 Meena scored 60% in an examination. After revaluation, her score increased by 20% but she still failed by 9 marks. If Ratan, who passed by 18 marks scores 90% in the exam, find the passing percentage of the examination.
(A) 74 (B) 78
(C) 80 (D) 85

Q10 A student failed an exam by 15 marks. Had he scored 60% more, his score would have been 48%, which was 20% more than the pass mark. Find the maximum mark of the examination.

(A) 120 (B) 130
(C) 150 (D) 200

Q11 IIM Delhi offers 2 courses: marketing and finance. 35% of the total students chose finance and 60% of the males chose marketing. If women constitute 30% of the total students, and 168 women chose finance, find the total number of students in IIM Delhi. Each student exactly chooses one course

(A) 2000 (B) 2400
(C) 3000 (D) 4200

Q12 In a town, females constitute 33.33% of the total population. The literacy rate of females is 70% while the overall literacy rate of the town is 50%. When 80 literate males are added to the town, the literacy rate of men becomes 50%. Find the number of illiterate males in the town.

(A) 240 (B) 200
(C) 360 (D) 300

Q13 IJP and BNC were the only two parties contesting elections from Haryana. After all the votes were cast, 40% of the votes were deemed invalid. Of the remaining, IJP had 50% more votes than BNC. If the invalid votes are also included, Then the votes of BNC increase by 50%. Find the ratio of the number of invalid votes cast to IJP and BNC.

(A) 3:2 (B) 5:3.
(C) 7:3 (D) 3:5

Q14 Karim gets 60 rupees per hour for normal time and 150 rupees per hour for extra time. If Karim earns 20% more income working in extra time than he earns in normal time, find the smallest amount of integral hours that Karim has spent working.

(A) 25 (B) 37
(C) 50 (D) 74

Q15 Jeevan got 50% of total marks. If he obtained 40% in Hindi, 20% in EVS, 80% in Maths and 48 in Science then find the marks obtained in Maths.

(Assume each subject maximum marks is same)

(A) 48 (B) 64
(C) 40 (D) 32

Q16 Side of a square is increased by 30%, whereas length of rectangle is increased by 20% but breadth is decreased by 40%. If the original breadth of rectangle is equal to the original side of square, then find the percentage change in area of square and rectangle respectively.

(A) 65,30 (B) 60,39
(C) 69,28 (D) 62,27

Q17 Exofbro, an MNC, promises its employees a 10% incentive of the total sales target achieved by them in a given financial year. However, after the end of the first quarter, they realize that every employee had already achieved 55% of the target. Forecasting that twice the target will be achieved by the end of the financial year by every employee, the company revised the percentage incentive for the next three quarters in such a way that the overall incentive received by any employee for the financial year will still remain the same. Find that new percentage incentive set for the remaining year.

(A) 2%approx (B) 4.2%approx
(C) 3.1%approx (D) 5.0%approx

Q18 In a class, 70% of the students were girls and the rest were boys. The number of girls was 72 more than the number of boys. If 50% of the girls and 45% of the total class passed the examination, find the number of males who did not pass the examination.

(A) 18 (B) 36
(C) 45 (D) 54

Q19 40% of the guests attending an event were men. 30% of the men and 20 women left the event such that the number of women in the event was 65%, how many men should be added so that there are equal number of men and women in the event?
(A) 80 (B) 50
(C) 70 (D) 60

Q20 A factory consists of 2000 footballs and basketballs. 40% of the balls are red in color and 75% of the footballs are black in color. If the number of black-colored basketballs is twice the number of red-colored footballs, find the number of basketballs.
(A) 1040 (B) 1280
(C) 720 (D) 960

Q21 In 2023, there were 12,200 books in a library of two types: suspense and action. In 2024, 600 of the action books were taken out of the library. In 2025, there was a 20% increase in the action books and 15% decrease in the suspense books such that total books in the library were 12,030. Find the number of suspense books in the library in 2025.
(A) 4,590 (B) 5,400
(C) 7,440 (D) 6,800

Q22 16.67% of the students in a college chose arts, 14.28% of the people chose commerce, 330 people chose math, and 33.3% percent chose literature. If there were 20% students who did not choose any subject, find the students who chose commerce. (Note that each student can choose at most one subject)
(A) 300 (B) 350
(C) 385 (D) 550

Q23 Each member of a four-member family consumes an equal amount of onions in a month. However, in a certain month, the price of the onions increases by 20% and three members of the family reduce their consumption by 20%. By what percent should the fourth person reduce his consumption so that their expenditures on onions reduces by 10%?
(A) 20 (B) 30
(C) 40 (D) 50

Q24 Arun purchased the same amount of grains and sprouts in June and July. However, he had to spend 240 rupees more in July due to a 20% and 30% increase in the price of grains and sprouts. If the amount spent on sprouts in July is 780 rupees, find the amount spent on grains in july.
(A) 360 (B) 400
(C) 480 (D) 300

Q25 Country A's per capita income is twice that of country B, with B having 33.33% more people than A. Find the percentage by which A's income exceeds that of B
(A) 25 (B) 50
(C) 75 (D) 80

Q26 The annual salary of Bhim is 200,000 rupees. He got a salary increment of x% the next year followed by an $\frac{x}{2}\%$ increment in the following year. If the salary of Bhim is 1200,000 rupees in the third year, find the total income earned by Bhim in the given three years(in lakhs).
(A) 20 (B) 15
(C) 30 (D) 25

Q27 The salaries of Tom, Rom and Som were in the ratio of 5:24:6. After increments,Tom's salary was increased by a certain percentage and Som's increment percentage was half that of Tom, and their resultant salary is in the ratio of 3:4:2. Find the percentage increment of Rom.
(A) 100 (B) 150
(C) 250 (D) 300

Q28 The marketing unit of a company found that out of the base of its potential customers, 30% bought a product while the rest didn't. Out of those who bought the product, 40% saw its online advertisement while 60% didn't. Of those who didn't buy the product, 45% saw its online advertisement while 55% didn't. What is the ratio of those who bought the product and saw its online advertisement to those who watched the advertisement online but didn't buy it?

(A) 8:21 (B) 24:35

(C) 40: 63 (D) None of these

Q29 Monthly income of A is 25% more than B and 20% less than C. Monthly expenditure of B is 20% more than C and 25% less than A. If A saves 60% of his monthly income, then the monthly savings of B is approximately what percent of monthly savings of C?

Q30 In a college, the number of students decreased by 10% and the price of a rim of paper increased by 25% over the previous year. By how much percent should the usage of the rims of papers be cut short by each student, such that the total money spent on the rims of papers remains the same as the previous year?

(A) 11.11% (B) 13%

(C) 17% (D) 21%

Answer Key

Q1	B
Q2	D
Q3	B
Q4	D
Q5	B
Q6	A
Q7	D
Q8	C
Q9	B
Q10	C
Q11	B
Q12	A
Q13	C
Q14	B
Q15	B
Q16	C
Q17	C
Q18	B
Q19	D
Q20	A
Q21	A
Q22	A
Q23	C
Q24	A
Q25	B
Q26	A
Q27	B
Q28	A
Q29	50
Q30	A

Hints & Solutions

Note: scan the QR code to watch video solution

Q1 Text Solution:

Number of students in class 1 and 4=15%+35%=50%

Number of students in class 2 and 3=100%-50%=50%

Since the number of in class 2 is equal to the number of students in class 3,

class 2+ class 3=50%

2 class 3=50%

class 3=25%

The number of people in class 3=

$\frac{25}{100}(220) = 55$

Video Solution:

Q2 Text Solution:

Let the income of the man be 100i

Given that the man spent 30% on rent, 20% on food, 15% on travel and 10% on entertainment, and 4,000 on malls, total amount spent=

(30+20+15+10)i+4,000=75i+4,000

The money left with him=100i-(75i+4,000)=25i-4,000

This money is equal to 8,000 rupees.

25i-4,000=8,000

25i=12,000

Since we need to find 100i, his income would be 4(12,000)=48,000.

Video Solution:

Q3 Text Solution:

Let Arun's salary be x.

Tax paid by Arun=0.15x.

Arun's salary increased by 2 lakhs, so his new salary is x+200,000 rupees.

Tax paid by Arun=(0.25)(x+200,000)=0.25x+50,000.

The tax paid by Arun increased by 70,000, therefore:

0.25x+50,000=0.15x+70,000

0.10x=20,000

x=200,000

Therefore Arun's new salary=200,000+200,000=400,000 rupees.

Video Solution:

Q4 Text Solution:

Let the man earn a salary of 100x in Hyderabad.

After a 20% increase, his salary in Delhi=

$\left(1+\frac{20}{100}\right)100x = 120x$

After a 30% salary increase, his salary in Lucknow=$\left(1+\frac{30}{100}\right)120x$=156x

Given that he earns 19,040 rupees more in Lucknow than in Hyderabad

156x-100x=19,040

56x=19040

x=340

Therefore his salary in Delhi=120x=120(340)=40,800

Video Solution:

Q5 Text Solution:

Let the total wealth of the father be 100x.
Share received by the eldest son=30% (100x)=30x.
Remaining wealth=70x.
Share received by the second son=30% (70x)=21x.
Remaining wealth=70x-21x=49x.
This wealth is distributed in the ratio 2:5.
Share received by the third son=

$$\frac{2}{7}(49x) = 14x$$

Share received by the fourth son=

$$\frac{5}{7}(49x) = 35x$$

Among the four, the richest=35x and the third richest= 21x
Given that the richest son has 23,100 rupees more than the third richest,
35x=21x+23,100
14x=23,100
x=1650.
The amount received by the eldest son=30(1650)=49,500.

Video Solution:

Q6 Text Solution:

Let the total number of employees in the company be 100x.
people aged above 60=30x.
people aged below 60= $\left(1+\frac{30}{100}\right)30x$=39x
Then the number of people aged 60=100x-(39x+30x)=31x
31x=558
x=18
Therefore the total number of people in the company=100x=100(18)=1800

Video Solution:

Q7 Text Solution:

Let the monthly income be i.
He saves 30% of his monthly income, therefore his savings =0.3i
We know that Savings=Income-Expenditure
0.3i=i-Expenditure
Expenditure=0.7i
If his expenditure increases by 30%, then it becomes (1.3)(0.7i)=0.91i
If his savings needs to remain 0.3i,
0.3i=New income-0.91i
New income=0.3+0.91i=1.21i
Perecntage increase= $\left(\frac{1.21i-i}{i}\right)\left(100\right)$=21%.

Video Solution:

Q8 Text Solution:

Given the team has played 60 matches and won 25% of those games, so the total matches won by the team=(0.25)(60)=15.

Let the number of upcoming matches be x.
Therefore the number of games won will be 0.8x.
Given that loss percentage is 40, win percentage is 100-40=60.

$\frac{games\ won}{games\ played} = \frac{60}{100}$

$\frac{15+0.8x}{60+x} = 0.6$

15+0.8x=36+0.6x

0.2x=21

x=105

Total games =60+105=165.

Video Solution:

Q9 Text Solution:

Let the total score be 100x.
Meena has scored 60x.
After revaluation, Meena's score has increased by 20%, so her new score:1.2(60x)=72x
Let the passing mark be p. Since Meena has failed by 9 marks, the passing score is 72x+9.
Ratan has passed the examination by 18 marks and got an overall score of 90%, so:
72x+9+18=90x

18x=27

x=1.5

Therefore the passing mark of the exam is 72x+9, 72(1.5)+9=108+9=117.

Pass percentage=$\frac{117}{150} \times 100 = 78$

Video Solution:

Q10 Text Solution:

Let the pass mark be p and the maximum mark be m.
Score of the student=p-15.
Had he scored 60% more, his score would have been 20% more than the pass mark.

$\left(1+\frac{60}{100}\right)(p-15) = \left(1+\frac{20}{100}\right)p$

1.6(p-15)=1.2p

1.6p-24=1.2p

0.4p=24 so p=60.

So the score of the student=60-15=45.
If he scored 60% more, then his score would be 1.6(45)=72.
This score is 48% of the total marks

0.48m=72

m=150.

Therefore the maximum mark of the exam is 150.

Video Solution:

Q11 Text Solution:

Let the total number of students be 100x.
Since women constitute 30% of the total students, women=30x and men=70x
Since 60% of the males chose marketing, 40% of the males chose finance.
Males who choose marketing=(0.6)70x=42x and males who chose finance=(0.4)70x=28x
Since 35% of the students chose finance, the total number of students who chose finance=35x.
Number of women that chose finance=35x-28x=7x

	male	female	total
total	70x	30x	100x
marketing	42x	23x	65x
finance	28x	7x	35x

Given that 168 women chose finance,
7x=168
x=24
Therefore the total number of people in IIM Delhi is 100x=100(24)=2400

Video Solution:

Q12 Text Solution:

Given that the number of females in the town is 33.33%, if we assume the total population to be 3p, then the number of females is p.
Literacy rate of females=70%, therefore the number of literate females=$\frac{70}{100}p$=0.7p.
Overall literacy rate of the town=50%, therefore the number of literate people in the town=0.5(3p)=1.5p.
Therefore the number of literate males in the town is 1.5p-0.7p=0.8p and the number of illiterate men is 2p-0.8p=1.2p.

	population	literate	illiterate
female	p	0.7p	0.3p
male	2p	0.8p	1.2p
total	3p	1.5p	1.5p

When 80 people were added, the literacy rate of men became 50%, therefore:

$\frac{0.8p+80}{2p+80} = \frac{50}{100}$

0.8p+80=0.5(2p+80)
0.8p+80=p+40
0.2p=40
p=200.
Therefore the number of males in the town =2p=2(200)=400.
The number of illiterate males=1.2(p)=1.2(200)=240.

Video Solution:

Q13 Text Solution:

Let the total number of votes be 100x.
Total votes deemed invalid=40%(100x)=40x.
The total valid votes are 100x-40x=60x
IJP has 50% more votes than BNC.
Votes of IJP=$\left(1+\frac{50}{100}\right)$BNC.
IJP=1.5BNC .....(1)
And also,
IJP+BNC=60x.
1.5BNC+BNC=60x.
2.5BNC=60x.
BNC=24x and IJP=36x.
Now if the invalid votes are considered, the votes of BNC increase by 50%, therefore the total votes for BNC = (1.5)(24x)=36x.
No of invalid votes for BNC=36x-24x=12x
The total number of invalid votes for IJP =40x-12x=28x.
The ratio of invalid votes to IJP and BNC is 28x:12x, i.e 7:3

Video Solution:

Q14 Text Solution:

Let the total hours spent by Karim be k.
Let the hours spent working in normal time be x, then hours spent in working extra time is k-x.
Income working the normal time=(60)(x)
Income working extra time=(150)(k-x)
Given that karim earns 20% more in extra time,

(150)(k-x)=1.2(60)(x)
150(k-x)=72x
25(k-x)=12x
25k-25x=12x
25k=37x
k=$\frac{37}{25}$x
If k needs to be an integer, x needs to be a multiple of 25.
If k is to be minimum, x needs to be minimum
The minimum possible value of x is 25.
Therefore the minimum possible value of k is 37.

Video Solution:

Q15 Text Solution:

Let the maximum marks in each subject by y
Then, total marks obtained $= 50\%$ of
$4y = 2y$
Also, $\frac{2y}{5} + \frac{y}{5} + \frac{4y}{5} + 48 = 2y$

$$\Rightarrow \frac{7y}{5} + 48 = 2y$$
$$\Rightarrow 2y - \frac{7y}{5} = 48$$
$$\Rightarrow \frac{3y}{5} = 48$$
$$\Rightarrow y = 80$$

So, marks obtained in maths $= \frac{80}{100} \times 80$
$= 64$

Video Solution:

Q16 Text Solution:

Topic - Percentages

Let the side of a square be x then breadth of rectangle $= x$
Also length of a rectangle $= y$
Given, increased length of square
$= x + \frac{3x}{10} = \frac{13x}{10}$ increased length of rectangle $= y + \frac{y}{5} = \frac{6y}{5}$ and decreased breadth of rectangle $= x - (40\%$ of $x)$
$= x - \frac{2x}{5}$
$= \frac{3x}{5}$
Area of square $= \left(\frac{13x}{10}\right)^2 = \frac{169x^2}{100}$
and area of rectangle $= \frac{6y}{5} \times \frac{3x}{5} = \frac{18xy}{25}$
$\%$ increase in area of square $= 69\%$ and $\%$ decrease in area of rectangle
$= \left(\frac{xy - \frac{18xy}{25}}{xy} \times 100\right)\%$
$= 28\%$

Video Solution:

Q17 Text Solution:

Topic - Percentages

Let the target sales per individual be 100 units.
The overall incentive promised = $\frac{1}{10}$ × 100 = 10 units.
In the first quarter, the employees had already achieved 55% of the target , 55 units on which the incentive was paid @ 10% i.e. $\frac{1}{10}$h = 5.5

Remaining incentive = 10 - 5.5 = 4.5 units.

The forecast said twice the target will be achieved, so revised target = 200 out of which 55 is achieved, so for the remaining three quarters, target = 200 - 55 = 145.

We now need to find what is the remaining incentive (4.5) out of the remaining target (145).

Thus, $\frac{4.5}{145}$×100 = 3.1% approx.

Hence, option C is the correct answer.

Video Solution:

Q18 Text Solution:

Let the total number of students in the class be 100x.

Female students =70x and male students=30x.

given that there were 72 more girls than boys,

70x=30x+72

40x=72

x=1.8

so 100x=180

Number of girls =(0.7)(180)=126 and number of boys=54.

Given that 45% of the total class and 50% of girls passed the exam,

Total students who passed the exam=

$$\frac{45}{100}(180) = 81$$

The number of girls who passed the exam = (0.5) (126)=63.

Therefore the number of boys who passed the exam=81-63=18

Number of boys who did not pass the exam=54-18=36.

Video Solution:

Q19 Text Solution:

Let the total number of people attending the event be 100x.

Number of men=40x and number of women=60x.

30% of the men and 20 women left the event, therefore:

Number of men present in the event:

(0.7)40x=28x

The number of women present in the event:

60x-20

Given that women are 65% of the total guests now,

$$\frac{60x-20}{88x-20} = \frac{65}{100}$$

$$\frac{60x-20}{88x-20} = \frac{13}{20}$$

1200x-400=1144x-260

56x=140

x=2.5

Number of men present =28x=28(2.5)=70

Number of women present=60x-20=60(2.5)-20=130

So a total of 60 men should be added to the event

Video Solution:

Q20 Text Solution:

Given that the number 40% of the balls are red in color,

number of red-colored balls=

$$\frac{40}{100}(2000) = 800$$

Then the number of black-colored balls is 2000-800=1200
let the number of red-colored footballs be x
Then the number of black colored basketballs is 2x.
Since 75% of the balls of footballs are black colored, 25% of the footballs are red colored.
If 25%=x
75%=3x

	red	black
footballs	x	3x
basketballs	800-x	2x
total	800	1200

From the table, we can say that 2x+3x=1200
5x=1200
x=240
therefore the number of basketballs: 800-x+2x=800+x=1040

Video Solution:

Q21 **Text Solution:**
Let the number of action books be a and suspense books be s.
a+s=12,200 ...(1)
in 2024, 600 of the actions books were removed.
in 2025, 20% increase in action books and 15% decrease in suspense books,
1.2(a-600)+0.85(s)=12,030
1.2a+0.85s=12,750 ...(2)
multiplying (1) with 1.2 and subtracting with (2), we get
0.35s=1890
s= 5,400.
Number of suspense books in the library in 2025=0.85(s)=4,590

Video Solution:

Q22 **Text Solution:**
16.67%=$\frac{1}{6}$, 14.28%=$\frac{1}{7}$
For simplification, let us say the total number of people in the college were 42x(LCM of 6 and 7).
people who chose arts=$\frac{1}{6}(42x)$=7x
people who chose commerce=$\frac{1}{7}(42x)$=6x.
people who chose literature=$\frac{1}{3}(42x)$=14x.
Number of people who chose math=330
The number of people who chose a subject=7x+6x+14x+330=27x+330
Number of people who did not choose any subject= Total number of students- number of students that choose a subject
42x-(27x+330)
=15x-330
This is 20% of the students, so:
15x-330=0.2(42x)
15x-330=8.4x
6.6x=330
x=50
The number of people that chose commerce=6(50)=300

Video Solution:

Q23 **Text Solution:**
Let each person consume x kgs of onion per month and price of an onion be r rupees per kg.
Total consumption = 4x, and total money spent=4xr.

The expenditure reduces by 10%, so new expenditure=4xr(0.9)=3.6xr.
Three members reduced their consumption by 20%, so their consumption is 0.8x.
Since the price increases by 20%, the new price of onions is 1.2r.
let consumption of the fourth person be y, then:
(3(0.8x)+y)1.2r=3.6xr
2.4x+y=3x
y=0.6x.

Percentage decrease=$\frac{x-0.6x}{x} \times 100$=40%.

Video Solution:

Q24 Text Solution:

Let the prices of grains and sprouts be g and s in June.
The prices of grains and sprouts in July is 1.2g and 1.3s.
Given that he spent 780 rupees on sprouts in July,
1.3s=780
s=600 ...(1)
He also spent 240 rupees more in July compared to June, therefore:
(1.2g+1.3s)=g+s+240
0.2g+0.3s=240
from(1), 0.2g+0.3(600)=240
0.2g=60
g=300.
Therefore the amount spent on grains in july is 1.2(300)=360 rupees

Video Solution:

Q25 Text Solution:

let the population of A and B be p1 and p2.
Let the income of A and B be i1 and i2.
given that B has 33.33% more people than A, so:
if A's population is 3x then B's population is 4x.

Per capita income of A=$\frac{i1}{3x}$ ..(1)

Per capita income of b=$\frac{i2}{4x}$ .... (2)

Given that (1)=2(2)

$$\frac{i1}{3x} = \frac{2(i2)}{4x}$$

$$i1 = \frac{3}{2}i2$$

Percentage increase=

$$\frac{i1-i2}{i2} = \frac{1.5i2-i2}{i2} \times 100 = 50$$

Video Solution:

Q26 Text Solution:

Bhim's salary in the first year=200,000
Salary in the second year=200,000(1+$\frac{x}{100}$)
Salary in the third year=200,000

$$\left(1+\frac{x}{100}\right)\left(1+\frac{x}{200}\right)$$

let $\frac{x}{100}$ =t.
Bhim's salary in the third year=1200,000
200,000(1+t)(1+$\frac{t}{2}$)=12,00,000

$200\left(1+\frac{3t}{2}+\frac{t^2}{2}\right)=1200$

$\left(1+\frac{3t}{2}+\frac{t^2}{2}\right)=6$

$t^2+3t+2=12$

$t^2+3t-10=0$

$t^2-2t+5t-10=0$

(t-2)(t+5)=0

t=2 or -5. Since percentage cannot be negative, we get t=2

$\frac{x}{100}=2$ so x=200

Total income=200,000+200,000(3)+200,000(3)(2)

=200,000+600,000+1200,000

=20,00,000

Video Solution:

Q27 Text Solution:

Let the intial salaries of Tom Rom and Som be 5x, 24x, 6x.

The final salaries of Tom, Rom, and Som are in the ratio 3y, 4y, and 2y.

If Tom's salary was increased by r%, Som's salary was increased by r/2 %.

The increased salary of Tom=$5x\left(1+\frac{r}{100}\right)$

The increased salary of Som=$6x\left(1+\frac{r}{2(100)}\right)$

Given that Tom and Som's new salary are in the ratio 3:2,

$\frac{5x\left(1+\frac{r}{100}\right)}{6x\left(1+\frac{r}{200}\right)}=\frac{3}{2}$

$5\left(1+\frac{r}{100}\right)=9\left(1+\frac{r}{200}\right)$

$5+\frac{5r}{100}=9+\frac{9r}{200}$

$\frac{r}{200}=4$

$r=800$

Tom's final salary=$5x\left(1+\frac{800}{100}\right)=45x$

45x=3y

y=15x

Rom's final salary=4y=4(15x)=60x.

percentage increment in rom's salary =

$\left(\frac{60x-24x}{24x}\right)100=150$

Video Solution:

Q28 Text Solution:

Topic - Percentages

Let the total number of potential customers = 100

30% bought the product, 30 customers bought the product while 70 didn't buy it.

Out of 30 customers, 40% saw the advertisement, so 12 customers who bought the product saw the advertisement while 18 customers who bought the product didn't see the advertisement.

Out of 70 customers who didn't buy the product, 45% saw the advertisement, so

$70\times45\%=\frac{63}{2}$ customers saw the advertisement and didn't buy it while

$70-\frac{63}{2}=\frac{77}{2}$ customers didn't buy the product nor saw the advertisement.

So, the required ratio

= 12: $\frac{63}{2}$

= 24 : 63

= 8 : 21

Option (1) is correct.

Video Solution:

Q29 Text Solution:

Topic - Percentages

Let monthly income of A= Rs. a

Then, monthly income of B = a × $\frac{100}{125}$ = $\frac{4a}{5}$.

Monthly income of C = a × $\frac{100}{80}$ = $\frac{5a}{4}$.

Monthly expenditure of A = (100 - 60)% of a = $\frac{2a}{5}$.

Monthly expenditure of B = 75% of $\frac{2a}{5}$ = $\frac{3a}{10}$.

Monthly savings of B = $\frac{4a}{5}$ - $\frac{3a}{10}$ = $\frac{a}{2}$.

And, monthly expenditure of C = ($\frac{3a}{10}$) × $\frac{100}{120}$ = $\frac{a}{4}$

Monthly savings of C = $\frac{5a}{4}$ - $\frac{a}{4}$ = a

Therefore, percentage = $\frac{\frac{a}{2}}{a}$ × 100 = 50%.

Video Solution:

Q30 Text Solution:

We have, the students decreased by 10% or 1/10 times and the price increased by 25% or 1/4 times.

Now, let the number of students initially be s ; number of rims per students be r and the price of rim be p.

New number of students be 0.9s ; new number of rims per students be x ; and the new price of rim be 1.25p.

Initial total expenditure be = s * r * p

New total expenditure be = 0.9s * x * 1.25p

Since, the total expenditure remain the same in both the cases, therefore,

s * r * p = 0.9s * x * 1.25p

or x = $\frac{r}{0.9 * 1.25}$ = $0.8888888r$

Therefore, percentage change will be 11.11%

Video Solution: