

EXERCISE 5A

For SSC GD & MTS Exams

- Kamal saves $x\%$ of her monthly income. When her monthly expenditure increases by 20% and the monthly income increases by 26%, then her monthly savings increases by 60% what is the value of x ?
SSC MTS 5/10/2021 (Shift-3)
(a) 12 (b) 15
(c) 18 (d) 16
- A reduction of 15% in the price of sugars enables Arun Rai to buy 6 kg more for ₹ 272. The reduced price of sugar per kg is:
SSC MTS 6/10/2021 (Shift-1)
(a) ₹ 7.80 (b) ₹ 6
(c) ₹ 6.80 (d) ₹ 6.50
- Due to some crisis, some people from State A migrated to State B, and thereby the population of the second State increased by 19.96%. However, at a later stage, all of them returned to State A. Then by what percentage (correct up to two decimal places) did the population of State B decrease?
SSC MTS 5/10/2021 (Shift-1)
(a) 19.96 (b) 16.64
(c) 18.24 (d) 17.54
- Ramesh invested 30% more than Suresh. Suresh invested 40% less than Arun, who invested ₹ 8,000. The total amount invested by all of them together is:
SSC MTS 6/10/2021 (Shift-1)
(a) ₹ 19,020 (b) ₹ 18,020
(c) ₹ 19,040 (d) ₹ 19,080
- A person saves 28% of his income. If his income increases by 20% and the expenditure reduces by 5%, then his savings increases by $X\%$. The value of X is closest to:
SSC MTS 5/10/2021 (Shift-2)
(a) 72.5 (b) 84.3
(c) 45.8 (d) 54.4
- When the price of sugar gets raised by 30%, a person increases his expenditure on sugar by 12%. By what percentage (correct up to two decimal places) should he reduce his consumption of sugar so as to be able to maintain the same level of expenditure?
SSC MTS 20/10/2021 (Shift-2)
(a) 12.75% (b) 13.85%
(c) 11.54% (d) 15.75%
- An employee gets two succession increments in his salary, as a result of which his salary becomes 2.5 times the initial salary. What was his first percentage increment if the second percentage increment was 4 times as high as the first?
SSC MTS 18/10/2021 (Shift-2)
(a) 10% (b) 25%
(c) 50% (d) 12%
- A town with literacy rate of 85% has a population of 2500. If male population is 55%, and 92% of them are literate, then find the literacy rate of females in the town.
SSC MTS 20/10/2021 (Shift-1)
(a) 82% (b) 75%
(c) $72\frac{5}{9}\%$ (d) $76\frac{4}{9}\%$
- At a recruitment test, the candidates were tested for General Awareness (GA) and Quantitative Techniques (QT). 54% and 45% failed in GA and QT, respectively, while 16% failed in both. If 136 candidates passed in both what was the total number of candidates?
SSC MTS 18/10/2021 (Shift-3)
(a) 800 (b) 640
(c) 600 (d) 850
- In a company, 75% of the worker are skilled and the remaining are unskilled. 84% of skilled workers and 28% of unskilled workers are permanent. If the number of temporary workers is 180, then the total number of workers in the company is:
SSC MTS 18/10/2021 (Shift-1)
(a) 800 (b) 700
(c) 650 (d) 600
- Varun gave 60% of the money he had to his wife. He also gave 20% of the remaining amount to each of his three children. Three-fifth of the amount now left was spent on miscellaneous items, and the remaining amount of ₹ 9,600 was deposited in the bank. How much money did Varun have initially?
SSC MTS 13/10/2021 (Shift-3)
(a) ₹ 2,00,000 (b) ₹ 1,80,000
(c) ₹ 1,50,000 (d) ₹ 1,60,000
- A is 25% less than B, B is 30% less than C, and C is 50% more than D. If the difference between A and

C is 285, then $33\frac{1}{3}\%$ of B is equal to:

SSC MTS 14/10/2021 (Shift-3)

- (a) 140 (b) 150
(c) 120 (d) 105
13. Due to a 20% reduction in the price of wheat per kg, Ram is able to buy 5 kg more for ₹ 800. What is the original quantity (in kg) of wheat?
SSC MTS 14/10/2021 (Shift-1)
- (a) 50 (b) 20
(c) 40 (d) 30
14. In a school, some students from section A were shifted to section B of Class X, and thereby, the number of students in section B increased by 12%. But at a later stage, all of them were shifted back to section A. By what percentage (correct up to two decimal places) did the number of students of section B decrease?
SSC MTS 13/10/2021 (Shift-2)
- (a) 12% (b) 10.71%
(c) 11% (d) 0%
15. Due to a 20% reduction in the price of wheat per kg, Ram is able to buy 5 kg more for ₹ 800. What is the original price (in ₹) of wheat per kg?
SSC MTS 12/10/2021 (Shift-3)
- (a) 30 (b) 55
(c) 50 (d) 40
16. 55% of the candidates in an examination were boys, 60% of the boys and 75% of the girls passed and 315 girls failed. The number of boys who failed were:
SSC MTS 12/10/2021 (Shift-3)
- (a) 626 (b) 632
(c) 616 (d) 646
17. A girl spends 76% of her income. If her income increases by 18% and her expenditure increases by 25% then what is the percentage increase or decrease in her savings (correct to one decimal place)?
SSC MTS 12/10/2021 (Shift-1)
- (a) 6.9%, decrease (b) 4.2%, decrease
(c) 5.7%, increase (d) 8.4%, increase
18. X and Y together have ₹ 1300. If ₹ 10 less than three-fifth of the amount of X is equal to half of the amount of Y, then how much does X have?
SSC MTS 16 August 2019 (Shift-1)
- (a) ₹ 700 (b) ₹ 600
(c) ₹ 550 (d) ₹ 650
19. Surekha spends 24% of her monthly income on household items, 16% on rent and 55% of the remaining on children education and others. If she saves ₹ 5940 monthly, then how much (in ₹) will

she spend on rent?

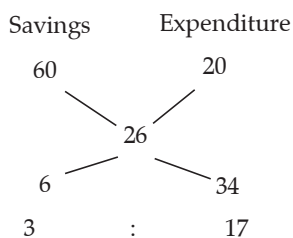
SSC MTS 08/10/2021 (Shift-3)

- (a) 3,960 (b) 3,740
(c) 3,300 (d) 3,520
20. Sonu spends 42% on food, 16% on rent, 10% on entertainment and 7% on transportation all of his monthly income. But for a family function he needs ₹ 18,000 for which he has to take a loan of ₹ 12,500. Find his monthly income.
SSC MTS 11/10/2021 (Shift-3)
- (a) ₹ 22,000 (b) ₹ 24,000
(c) ₹ 20,000 (d) ₹ 25,000
21. A's monthly salary is 20% more than B's monthly salary. C's monthly salary is ₹ 25,000 more than B's monthly salary. Their total monthly salary is ₹ 2,65,000. The salary of B is what percentage of that of C?
SSC MTS 11/10/2021 (Shift-2)
- (a) 75% (b) 55%
(c) 60% (d) 70%
22. A girl spends 80% of her income. If her income increases by 18% and her expenditure increases by 25%, then what is the percentage increase or decrease in her savings (correct to one decimal place)?
SSC MTS 22/10/2021 (Shift-3)
- (a) 5%, decrease (b) 10%, decrease
(c) 10%, increase (d) 5%, increase
23. 40% of the candidates in an examination were girls. 35% of the boys and 20% of the girls failed, and 585 boys passed in the examination. The number of girls who passed were:
SSC MTS 22/10/2021
- (a) 460 (b) 450
(c) 580 (d) 480
24. When the numerator of a fraction is increased by 25% and the denominator is increased by $31\frac{1}{4}\%$, it becomes $\frac{5}{14}$. Find the fraction.
SSC MTS 27/10/2021 (Shift-3)
- (a) $\frac{3}{8}$ (b) $\frac{7}{8}$
(c) $\frac{3}{11}$ (d) $\frac{5}{8}$
25. The radius of a cylinder is increased by 20% and its height is decreased by 45%. What is the percentage increase/decrease in the volume of the cylinder?
SSC MTS 27/10/2021 (Shift-3)
- (a) Increase, 25% (b) Decrease, 20.8%
(c) Decrease, 25% (d) Increase, 20.8%

26. Riya spends $66\frac{2}{3}\%$ of her income. If her income increases by 17% and saving increase by 17%, then her expenditure increases by:
SSC MTS 27/10/2021 (Shift-2)
- (a) 33% (b) 12.8%
(c) 16.2% (d) 15.5%
27. 16% of the voters did not cast their votes in an election between two candidates. 10% of the votes polled were found to be invalid. The successful candidate got 60% of valid votes and won by a margin of 567 votes. The number of voters enrolled in the voter list is:
SSC MTS 27/10/2021 (Shift-1)
- (a) 3000 (b) 3750
(c) 2500 (d) 3570
28. If A is 200% more than B, then B is how much percentage less than A?
SSC MTS 07/08/2019 (Shift-3)
- (a) 33.33% (b) 50%
(c) 100% (d) 66.67%
29. 320 is how much percentage less than 400?
SSC MTS 07/08/2019 (Shift-2)
- (a) 20% (b) 18%
(c) 12% (d) 15%
30. A number is first increased by 40% and then it is increased by 30% What is the net percentage increase?
SSC MTS 06/08/2019 (Shift-3)
- (a) 82% (b) 96%
(c) 72% (d) 70%
31. 26% of A is 832. What is 31% of A?
SSC MTS 06/08/2019 (Shift-2)
- (a) 968 (b) 876
(c) 854 (d) 992
32. A is 15% more than B. B is what percent less than A ? (correct to the two decimal points)
SSC MTS 06/08/2019 (Shift-1)
- (a) 9.17% (b) 16.14%
(c) 13.04% (d) 6.14%
33. A is 20% more than B. B is 25% more than C. What percent C is less than A ?
SSC MTS 05/08/2019 (Shift-3)
- (a) 33.33% (b) 37.5%
(c) 50% (d) 66.66%
34. A number is first increased by $16\frac{2}{3}\%$ and then decreased by 15% to get 238. What is 37.5% of that number ?
SSC MTS 05/08/2019 (Shift-1)
- (a) 150 (b) 75
(c) 120 (d) 90
35. A person spends 10% of his salary on food. He spends 20% of the remaining amount on fuel. If he has Rs. 4680 now, then what is his salary?
SSC MTS 02/08/2019 (Shift-2)
- (a) 6000 (b) 5000
(c) 6500 (d) 5500
36. A number is first increased by 20% and then reduced by 15% If the final value is 2040, then what is the initial value of the numbers ?
SSC MTS 02/08/2019 (Shift-1)
- (a) 2100 (b) 1800
(c) 2000 (d) 1900
37. In an examination, there are 800 boys and 600 girls. 40% boys and 60% girls passed the examination. The percentage (correct to two decimal places) of failed students from the total students is:
SSC MTS 14/08/2019 (Shift-3)
- (a) 52.34% (b) 50.36%
(c) 51.43% (d) 53.57%
38. If 40% of x equal 50% of y, then y : x is:
SSC MTS 09/08/2019 (Shift-2)
- (a) 4 : 5 (b) 3 : 2
(c) 2 : 3 (d) 5 : 4
39. Two numbers are 80% and 35% respectively greater than the third number. What is the ratio of two numbers ?
SSC MTS 16/08/2019 (Shift-3)
- (a) 4 : 3 (b) 17 : 6
(c) 8 : 5 (d) 8 : 3
40. In spite of an increase in price of a commodity by 20% the overall expenditure on it increases by 12%. What is the percentage decrease in the quantity of commodity consumed?
SSC MTS 19/08/2019 (Shift-3)
- (a) $7\frac{1}{3}$ (b) $7\frac{1}{2}$
(c) 8 (d) $6\frac{2}{3}$

SOLUTIONS 5A

1. (b) Trick



$$\therefore \text{Value of } x = \frac{3}{20} \times 100 = 15\%$$

2. (c) Trick

$$\frac{15}{100} \xrightarrow{\times 2} \frac{3}{20} \xrightarrow{\times 2} \frac{6}{40}$$

$$\therefore \text{Reduce price of sugar} = \frac{272}{40} = ₹ 6.8$$

3. (b) Let the population of state B be 100
According to the question,

100	:	119.96
\swarrow \nearrow Diff = 19.96		

$$\therefore \text{Percentage Decrease population of State B} = \frac{19.96}{119.96} \times 100 = 16.64\%$$

4. (c) Let Arun invested money be 100

According to the question

Ramesh	Suresh	Arun
70	80	100

Arun invested 100 = 8000

1 unit = 80

Total investment = $238 \times 80 = ₹ 19040$

5. (b) Let the income of person be 100

According to question

Income	Exp.	Savings
100	72	28
↓ +20%	↓ -5%	↓
120	68.4	51.6

Percentage increase in saving

$$x\% = \frac{51.6 - 28}{28} \times 100 = 84.28\%$$

6. (b) Let the price of sugar be ₹ 100 per kg
and consumption of sugar be 1 kg

Expense = $100 \times 1 = ₹ 100$

Price after increase cost 30% = $100 + 30 = ₹ 130$

Expense = $100 + 12 = ₹ 112$

Total consumption = $\frac{112}{130} \times 100 = 86.15$

$$\therefore \text{Percentage} = \frac{(1 - 0.8615)}{1} \times 100 = 0.1385 \times 100 = 13.85\%$$

7. (b)

$$= 2.5 + 40 + \frac{2.5 \times 40}{100} = 75$$

$$\therefore \text{First increment percentage} = 100 - 75 = 25\%$$

8. (d) Given:

Total population = 2500

Percent of male population = 55%

Total number of male = $\frac{55}{100} \times 2500 = 1375$

Number of female population = $2500 - 1375 = 1125$

Total literate population

$$= 2500 \times \frac{85}{100} = 2125$$

Number of literate males

$$= \frac{92}{100} \times 1375 = 1265$$

Number of literate females

$$= 2125 - 1265 = 860$$

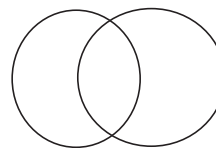
ATQ,

Percent of literate females

$$= \frac{860}{1125} \times 100 = 76\frac{4}{9}\%$$

9. (a) Let the total number of candidates be 100

According to question,



$$\text{Passed student} = 100 - (36 + 16 + 29) = 100 - 81 = 19$$

$$\therefore 17 \text{ Percent} = 136$$

$$1 \text{ Percent} = \frac{136}{17}$$

$$\therefore 100 \text{ Percent} = \frac{136}{17} \times 100 = 800$$

10. (d) Let the total number of workers = 100

$$\text{Number of skilled workers} = \frac{100 \times 75}{100} = 75$$

$$\text{Number of unskilled workers} = 100 - 75 = 25$$

Total Number of Permanent workers

$$= \frac{75 \times 84}{100} + \frac{25 \times 28}{100}$$

$$= 63 + 7 = 70$$

$$\text{Number of Temporary workers} = 100 - 70 = 30$$

$$\text{Total number of workers} = \frac{100}{30} \times 180 = 600$$

11. (c) Let the total money of Varun = 100

given the amount to wife = 60

$$\text{Left money} = 100 - 60 = 40$$

Amount given his three child

$$= 3 \times \frac{40}{100} \times 20 = 24$$

$$= 280 \text{ kg}$$

$$\text{Left money} = 40 - 24 = 16$$

Money spent on Miscellaneous items

$$= 16 \times \frac{3}{5} = 9.6$$

$$\text{Left money} = 16 - 9.6 = 6.4$$

According to the question,

$$\therefore \text{Remaining amount } 6.4 = 9600$$

$$\therefore \text{Total Money} = \frac{9600 \times 100}{6.4} = ₹ 1,50,000$$

12. (a) Let D is 100

According to the question,

A	B	C	D
78.75	105	150	100

$$\text{Given, Differ. b/w A and C} (150 - 78.75) = 285$$

$$\therefore 33\frac{1}{3}\% \text{ of B} = \frac{285}{71.25} \times 105 \times \frac{1}{3} = 140$$

13. (b) Trick:

$$\frac{20}{100} = \frac{4 \text{ Old Price}}{5 \text{ New Price}}$$

$$\therefore \text{Old Price} = \frac{800}{4 \times 5} = 40 \text{ Rs/kg}$$

$$\therefore \text{Original quantity of wheat} = \frac{800}{40} = 20 \text{ kg}$$

14. (b) Let the student of class B = 100

Percentage of student from class A to class B = 12%

Total number of student in section B = 112

Percentage of student shifted from section B to section A

$$= \frac{12}{112} \times 100 = 10.71\%$$

15. (d) Trick:

$$\frac{20}{100} = \frac{4 \text{ Old Price}}{5 \text{ New Price}}$$

\(\therefore\) Original price (old price) of wheat

$$= \frac{800}{4 \times 5} = ₹ 40$$

16. (c) Let the total number of candidates = 100

Number of boys candidate = 55

Number of girls candidate = 100 - 55 = 45

ATQ,

Number of girls candidate passed = 75%

Fail girls candidate = 100 - 75 = 25%

\(\therefore\) 25% Fail girls candidate = 315

\(\therefore\) Number of (fail) boys candidate

$$= \frac{315 \times 100}{25 \times 45} \times 55 \times \frac{2}{5}$$

$$= 616$$

17. (b) Let the income of girls be = 100

According to the question,

income	expen.	savings
--------	--------	---------

100	76	24
-----	----	----

\(\downarrow\) + 18%	\(\downarrow\) + 25%	\(\downarrow\)
----------------------	----------------------	----------------

118	95	23
-----	----	----

\(\therefore\) Percentage of saving (decrease)

$$= \frac{(24 - 23)}{24} \times 100$$

$$= \frac{1}{24} \times 100 = 4.2\%$$

18. (?) We have Amount of $x = ₹ x$

Amount of $y = ₹ y$

$$\frac{1}{2}y = \frac{3}{5}x - 10$$

$$\Rightarrow x + y = 1300$$

$$\Rightarrow y = 1300 - x$$

$$\frac{1}{2}(1300 - x) = \frac{3}{5}x - 10$$

$$\Rightarrow 6500 - 5x = 6x - 100$$

$$\Rightarrow 11x = 6600$$

$$\Rightarrow x = ₹ 600$$

19. (d) Let the total income of Surekha = 100
 Surekha spend money on household items = 24
 Left money = $100 - 24 = 76$
 Surekha spent money on rent = 16
 Left money = $76 - 16 = 60$
 Surekha spent money on children education
 $= 60 \times \frac{55}{100} = 33$
 Left money = $60 - 33 = 27$
 \therefore Saving = 27 = 5940
 \therefore Money spent on rent = $\frac{5940 \times 16}{27} = 3,520$

20. (a) Let the monthly income of Sonu = 100
 According to question
 Total spent money = $42 + 16 + 10 + 7 = 75$
 Left money = $100 - 75 = 25\%$
 Need Money for function = 18000
 He takes loan (Money) = 12500
 Remaining money for monthly income
 $25\% = 18000 - 12500$
 $25\% = 5500$
 Total monthly income = $\frac{5500 \times 100}{25}$
 $= ₹ 22,000$

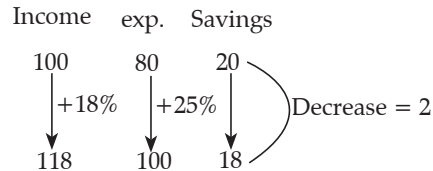
21. (a) Let the Monthly salary of B = $100x$
 According to the question,
 Monthly salary of A = $100x \times \frac{120}{100} = 120x$
 Monthly salary of C = $100x + 25000$
 Given Total Monthly salary of A, B, C
 $= 2,65,000$
 $120x + 100x + 100x + 25000 = 2,65,000$
 $320x = 265000 - 25000$
 $320x = 240000$
 $x = 750$

\therefore Percentage (Salary of B is percentage of salary C)

$$\frac{100x \times 100}{100x + 25000} = \frac{100 \times 750 \times 100}{75000 + 25000}$$

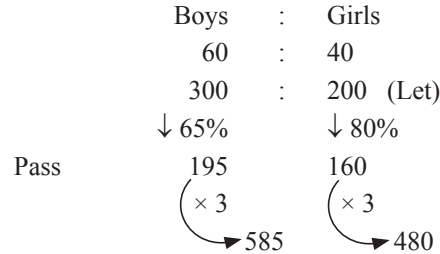
$$= \frac{100 \times 750 \times 100}{100000} = 75\%$$

22. (b) Let the income of girls = 100
 According to the question,



\therefore Percentage of saving (decrease)
 $= \frac{2}{20} \times 100 = 10\%$

23. (b) Trick:



24. (a) Let the fraction be $\frac{a}{b}$

According to question,

$$\frac{a \times 125}{b \times \frac{525}{4}} = \frac{5}{14}$$

$$\frac{a}{b} = \frac{5}{14} \times \frac{525}{500} = \frac{3}{8}$$

25. (b) Trick: $r = 20\%$

$$r^2 = 20 + 20 + \frac{20 \times 20}{100} = 44\%$$

$$h = -45\%$$

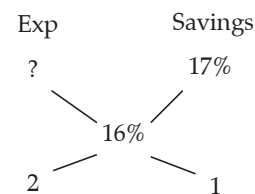
Volume of cylinder (Decreasing)

$$(\pi r^2 h) = 44 - 45 - \frac{44 \times 45}{100}$$

$$= 44 - 45 - 19.8$$

$$= -20.8\%$$

26. (d) Trick



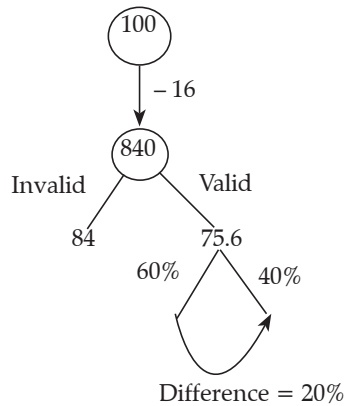
$$2 \text{ unit} = 1$$

$$1 \text{ unit} = \frac{1}{2} = .5$$

\therefore Expenditure increase = $16 - 0.5 = 15.5\%$

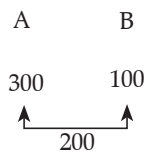
27. (b) Let the number of voters enrolled in voting list = 100

According to question



$$\therefore \text{Total voter} = \frac{567}{20 \times 756} \times 100 = 3750$$

28. (d) According to question



$$\text{Percentage} = \frac{200}{300} \times 100 = 66.67\%$$

29. (a) According to the question



$$\therefore \text{Required percentage} = \frac{80}{400} \times 100 = 20\%$$

30. (a) Trick:

$$40 + 30 + \frac{40 \times 30}{100} = 82\%$$

31. (d) According to the question

$$\begin{aligned} \therefore 26\% \text{ of } A &= 832 \\ \therefore 31\% \text{ of } A &= \frac{832 \times 31}{26} = 992 \end{aligned}$$

32. (d) Let B is 100 and A is 115

$$\text{Difference} = 115 - 100 = 15$$

$$\text{Required percentage} = \frac{15}{105} \times 100 = 13.04\%$$

33. (a) Trick:

$$A \quad \frac{20}{100} = \frac{1}{5}$$

$$B \quad \frac{25}{100} = \frac{1}{4}$$

$$A : B : C$$

$$6 : 5 : 5$$

$$5 : 5 : 4$$

$$30 : 25 : 20$$

$$\text{Difference} = 10$$

$$\therefore \text{Percentage} = \frac{10}{30} \times 100 = 33.33\%$$

34. (d) Trick

$$\frac{50}{300} = \frac{1}{6}$$

$$\frac{15}{100} = \frac{3}{20}$$

$$\begin{array}{cc} 6 & 7 \\ 20 & 17 \\ 120 & 119 \end{array}$$

$$\therefore 119 \text{ unit} = 238$$

$$\therefore 1 \text{ unit} = 2$$

$$\therefore 120 \text{ unit} = 240$$

$$\therefore 37.5\% \text{ of } 240 = \frac{37.5 \times 240}{100} = 90$$

35. (c) Let the salary of person be 100

Trick

$$(100 - 10\%) - 90 \times \frac{20}{100} = 90 - 18 = 72$$

$$\therefore \text{Salary} = \frac{4680 \times 100}{72} = 6500$$

36. (c) Let the number be 100

Ist condition:

$$\text{number after increase} = 100 + 20 = 120$$

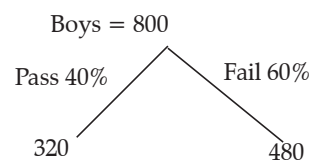
IInd condition

$$\text{Number after decrease} = \frac{120 \times 15}{100} = 102$$

$$\therefore 102 = 2040$$

$$\therefore \text{initial value} = \frac{2040 \times 100}{102} = 2000$$

37. (c)



Girls = 600

Pass 60% Fail 40%

360 240

Total student = 800 + 600 = 1400

Number of fail student = 480 + 240 = 720

∴ Percentage of fail student

$$= \frac{720}{1400} \times 100 = 51.43\%$$

38. (a) According to the question

$$40\% \text{ of } x = 50\% \text{ of } y$$

$$\frac{x}{y} = \frac{50}{40} = \frac{5}{4}$$

$$x : y = 5 : 4$$

$$\therefore y : x = 4 : 5$$

39. (a) Let the third number be 100

According to question

I	II	III
180	135	100

$$\therefore \text{Ratio between two numbers} = 180 : 135 = 4 : 3$$

40. (d) Trick:

Ist	20% = $\frac{1}{5}$	
IIInd	12% = $\frac{3}{25}$	
Consumption	Exp.	
$\frac{5}{28}$	$\frac{6}{25}$	
$\frac{140}{140}$	$\frac{150}{150}$	
<div style="border-top: 1px solid black; width: 100%; margin-top: 5px;"></div> Diff = 10		

$$\therefore \text{Percentage} = \frac{10}{50} \times 100 = 6\frac{2}{3}\%$$

EXERCISE 5B

For SSC CHSL Exam

1. A's salary is 15% less than B's salary. B's salary is 30% less than C's salary. By how much percent approximately is C's salary more than A's salary?

SSC CHSL 12/8/2021 (Shift-2)

- (a) 68 (b) 45
(c) 75 (d) 40

2. Renu spends 68% of her income. When her income increases by 40%, she increases her expenditure by 30%. Her savings are increased by:

SSC CHSL 12/8/2021 (Shift-1)

- (a) 62.5% (b) 37.98%
(c) 61.25% (d) 51.6%

3. A, B and C are three positive numbers such that A is 70% of B and B is 40% of C. If the sum of all three numbers is 336, then 15% of the sum of B and C is:

SSC CHSL 11/8/2021 (Shift-2)

- (a) 42 (b) 44
(c) 48 (d) 32

4. When the price of an item was reduced by 20% its sales increased by $x\%$. If there is an increase of 25% in the receipt of the revenue, then the value of x is:

SSC CHSL 10/8/2021 (Shift-3)

- (a) 53.84% (b) 55.75%
(c) 56.25% (d) 61.50%

5. A person saves 25% of his income. If his income increases by 20% and his savings remain the same, then what will be the increased percentage of his expenditure?

SSC CHSL 9/8/2021 (Shift-3)

- (a) 20 (b) 26
(c) 30 (d) $26\frac{2}{3}$

6. Ramesh saves $26\frac{2}{3}\%$ of his monthly salary. When his expenses are increased by 20%, he is able to save ₹ 4080 per month. His monthly salary is:

SSC CHSL 9/8/2021 (Shift-2)

- (a) 35000 (b) 38000
(c) 34000 (d) 30000

7. What percentage of the numbers from 101 to 1000 have 9 in the unit's digit?

SSC CHSL 19/10/2020 (Shift-1)

- (a) 10% (b) 12%
(c) 20% (d) 15%

8. The difference of two positive numbers is 1020. If 7.6% of the greater number is 12.4% of the smaller number, then the sum of the two numbers is equal to:

SSC CHSL 20/10/2020 (Shift-1)

- (a) 3250 (b) 4250
(c) 4520 (d) 3520

9. If the length of a rectangle is increased by 12% and the breadth is decreased by 8%, the net effect on the area is:

SSC CHSL 18/03/2020 (Shift-1)

- (a) increase by 3.04% (b) increase by 2.6%
(c) decrease by 3.04% (d) decrease by 2.6%

10. Sachin's income is 25% more than Dileep's income. By how much percentage is Dileep's income less

- than Sachin's income?
SSC CHSL 17/03/2020 (Shift-1)
- (a) 15% (b) 20%
 (c) 18% (d) 22%
11. The price of petrol is increased by 24%. A person wants to increase his expenditure by 14% only. By what percentage (correct to one decimal place), should he decrease his consumption in order to maintain the same level of expenditure?
SSC CHSL 11 July 2019 (Shift-3)
- (a) 8.3 (b) 7.9
 (c) 8.1 (d) 7.8
12. The price of sugar got raised by 25%. To maintain the same level of expenses on sugar, a person reduced the consumption of sugar by 4% and also increased his expenditure on sugar by $x\%$. The value of x is:
SSC CHSL 10/07/2019 (Shift-2)
- (a) 19.5 (b) 21
 (c) 20 (d) 18.75
13. Price of tea has increased by 20% but I have decided to increase my expenditure towards tea by 15% only. By what percentage should I reduce my consumption (correct to one place of decimal) in order to be able to maintain the same level of expense towards tea?
SSC CHSL 10/07/2019 (Shift-1)
- (a) 5.4 (b) 4.2
 (c) 5.6 (d) 4.8
14. The sum of the salaries of A and B is ₹ 42,000. A spends 75% of his salary and B spends 90% of his salary. Now their savings are the same. What is A's salary (in ₹)?
SSC CHSL 09/07/2019 (Shift-2)
- (a) 18,000 (b) 12,000
 (c) 30,000 (d) 15,000
15. The sum of the salaries of A and B is Rs. 42,000. A spends 75% of his salary and B spends 90% of his salary. Now their savings are the same. What is B's salary (in Rs)?
SSC CHSL 09/07/2019 (Shift-1)
- (a) 18,000 (b) 12,600
 (c) 15,000 (d) 30,000
16. The sum of the salaries of A and B together is ₹ 45000. A spends 85% of his salary and B, 70% of his salary. If now their savings are the same, what is B's salary (in ₹)?
SSC CHSL 08/07/2019 (Shift-3)
- (a) 30,000 (b) 18,000
 (c) 12,600 (d) 15,000
17. Two students, A and B, appeared for an examination. A secured 8 marks more than B and the marks of the former was 60% of the sum of their marks. The sum of the marks obtained by A and B is:
SSC CHSL 08/07/2019 (Shift-2)
- (a) 45 (b) 50
 (c) 40 (d) 75
18. The sum of the salaries of A and B together is ₹ 43000. A spends 95% of his salary and B spends 80% of his salary. If now their savings are the same, what is B's salary (in ₹)?
SSC CHSL 07/08/2019 (Shift-2)
- (a) 8000 (b) 34400
 (c) 10600 (d) 8600
19. A number is increased by 30%, then decreased by 30%, then further decreased by 30%. What is the net increase/decrease percent in the number (correct to the nearest integer)?
SSC CHSL 05/07/2019 (Shift-2)
- (a) 40% increase
 (b) 36% decrease
 (c) 36% increase
 (d) 40% decrease
20. A number is decreased by 30%, then increased by 30%, then further increased by 30%. What is the net increase/decrease percent in the number (correct to the nearest integer)?
SSC CHSL 05/07/2019 (Shift-1)
- (a) 18% increase
 (b) 18% decrease
 (c) 19% decrease
 (d) 19% increase
21. A number is decreased by 30%, then increased by 30%, then further decreased by 10%. What is the net increase/decrease percent in the number (correct to the nearest integer)?
SSC CHSL 04/07/2019 (Shift-3)
- (a) 18% increase
 (b) 19% decrease
 (c) 19% increase
 (d) 18% decrease
22. The price of a commodity is increased by 36% and the quantity purchased is decreased by 30%. What is the percentage increase/decrease in the amount spent on the commodity?
SSC CHSL 03/07/2019 (Shift-2)
- (a) 6%, increase
 (b) 4.8%, increase

10 ■ SSC Maths

- (c) 6%, decrease
(d) 4.8%, decrease
23. Sudha spends 80% of her income. When her income is increased by 30%, She increases her expenditure by 25%. Her savings are:
SSC CHSL 03/07/2019 (Shift-1)
(a) Increased by 5% (b) Decreased by 30%
(c) Decreased by 5% (d) Increased by 50%
24. Anu spends 90% of her income. If her expenditure increases by 25% and savings increases by 30%, then by what percent does her salary increase?
SSC CHSL 02/07/2019 (Shift-3)
(a) 25.5% (b) 24%
(c) 22.5% (d) 20%
25. In a constituency, 40% of the voters are senior citizens. 40% of the senior citizen voters are illiterates and 25% of the non-senior citizen voters are literates. By what percentage is the number of literate senior citizens voters less than that of illiterate non-senior citizen voters?
SSC CHSL 2/07/2019 (Shift-2)
(a) 40 (b) $48\frac{1}{3}$
(c) 50 (d) $46\frac{2}{3}$
26. A is 20% more than B, B is 25% more than C, C is 60% less than D and D is 20% more than E. Based on the above information which of the following is true?
SSC CHSL 02/07/2019 (Shift-1)
(a) D is 60% less than B
(b) E is 28% more than A
(c) A is 40% less than D
(d) C is 24% less than A
27. A man spends 72% of his income. If his income increased by 28% and his expenditure is increased by 25%, then what is the percentage increase or decrease in his savings (correct to one decimal place)?
SSC CHSL 01/07/2019 (Shift-3)
(a) 26.9% decrease (b) 38.4% increase
(c) 35.7% increase (d) 26.3% decrease

SOLUTIONS 5B

1. (a) Trick:

A	:	B	:	C
17	:	20	:	20
7	:	7	:	10
119	:	140	:	200

Difference = 81

$$\frac{15}{100} = \frac{3}{20} \rightarrow \frac{30}{100} = \frac{3}{10} \rightarrow$$

∴ Percentage of C's salary more than A's salary
 $= \frac{81}{119} \times 100 = 68.06\%$

2. (c) According to the question,

Income	Expenditure	Savings
100	68	32
↓ +40%	↓ +30%	↓ ?
144	88.4	51.6

∴ Percentage (savings) increased
 $= \frac{(51.6 - 32)}{32} \times 100$
 $= 61.25\%$

3. (a) Let the value of C is 100

then,	A	B	C
	28	40	100

Sum of all three numbers = 336

$$168 = 336$$

$$1 = 2$$

∴ 15% of (B + C) = $2 \times 140 \times \frac{15}{100} = 42$

4. (c) Let total sale = 100

Price of each item = 100

So, Total Revenue = $100 \times 100 = 10000$

After 25% increase (Revenue)

$$= 10000 \times \frac{125}{100} = 12500$$

After 20% reduce (price)

$$= 10000 \times \frac{80}{100} = 8000$$

$$\text{Difference} = 12500 - 8000 = 4500$$

∴ Percent of x = $\frac{4500 \times 100}{8000} = 56.25\%$

5. (d) Let the income be 100

According to question,

Income	Expenditure	Savings
100	75	25
↓ +20%	↓	↓ +0%
120	95	25

∴ Increase percentage of his expenditure
 $= \frac{20}{75} \times 100 = 26\frac{2}{3}\%$

6. (c) Let the monthly salary be 100

According to the question,

Salary	Expenditure	Savings
100	$\frac{220}{3}$	$\frac{80}{3}$
↓	↓ +20%	↓
100	88	12

$$\begin{aligned} \therefore 12\% \text{ of monthly savings} &= 4080 \\ \therefore \text{Salary (Monthly)} &= \frac{4080}{12} \times 100 \\ &= 34000 \end{aligned}$$

7. (a) According to the question

Total 9 unit digit 101 to 1000 = 90

$$\therefore \text{Percentage} = \frac{90}{900} \times 1000 = 10\%$$

8. (b) Let the greatest number be x and smaller number be y .

According to the question,

$$x \times 7.6 = y \times 12.4$$

$$\left. \frac{x}{y} = \frac{124}{76} = \frac{31}{19} \right\} \text{Difference} = 12$$

\therefore Difference of numbers 12% = 1020

$$\therefore \text{Sum of numbers} = \frac{1020 \times 50}{12} = 4250$$

9. (c) Trick:

$$12 - 8 - \frac{12 \times 8}{100} = 12 - 8.96 = 3.04\% \text{ decrease}$$

10. (b) Trick:

	Sachin	Dilip
	5	4
$\frac{25}{100}$	$= \frac{1}{4}$	

Difference = 1

$$\therefore \text{Sachin income \%} = \frac{1}{5} \times 100 = 20\%$$

11. (c) Let the price of petrol be 100

\therefore Increase the price = 24%

\therefore Price after increase = 124

Increase in the expenditure is 14%

Expenditure after increase = 114

$$\begin{aligned} \text{Decrease the consumption} &= \frac{124 - 114}{124} \times 100 \\ &= 8.06 = 8.1\% \end{aligned}$$

12. (c) Trick:

$$\begin{aligned} x &= 25 - 4 - \frac{25 \times 4}{100} \\ &= 25 - 5 = 20\% \end{aligned}$$

13. (b) Let the cost of tea be ₹ 100

Cost of tea after increasing = $100 + 20 = ₹ 120$

New expenditure of tea = $100 + 15 = ₹ 115$

\therefore Decreasing of consumption

$$= 120 - 115 = 5$$

\therefore Percentage of reduce consumption

$$= \frac{5}{120} \times 100 = 4.2\%$$

14. (b) Trick

	Salary	Spend
A	4	3
B	10	9

$$A \rightarrow \frac{75}{100} = \frac{3}{4}$$

$$B \rightarrow \frac{90}{100} = \frac{9}{10}$$

Sum of salary's (A + B) 14 = 42000

$$1 = 3000$$

\therefore Salary of A = $4 \times 3000 = ₹ 12000$

15. (d) Trick

	Salary	Spend
A	4	3
B	10	9

$$A \rightarrow \frac{75}{100} = \frac{3}{4}$$

$$B \rightarrow \frac{90}{100} = \frac{9}{10}$$

Sum of salary's (A + B) 14 = 42000

$$1 = 3000$$

\therefore Salary of B = $10 \times 3000 = ₹ 30000$

16. (d) Trick

	Salary	Spend
A	20	17
B	10	7

$$A \rightarrow \frac{85}{100} = \frac{17}{20}$$

$$B \rightarrow \frac{70}{100} = \frac{7}{10}$$

Sum of salary's (A + B) 30 = 45000

$$1 = 1500$$

\therefore Salary of B = $10 \times 1500 = ₹ 15000$

17. (c) According to the question,

Marks of student A = Marks of student B + 8

$$\text{So, } A = \frac{\text{Sum of marks(A + B)}}{100} \times 60$$

$$A = \frac{3A + 3B}{5}$$

$$5A = 3A + 3B$$

$$2A = 3B$$

$$\left. \begin{array}{l} \frac{A}{B} = \frac{3}{2} \end{array} \right\} \text{Difference} = 1$$

∴ 1 Unit = 8 Marks
Sums of marks (3 + 2) = 5 × 8 = 40 Marks

18. (d) Trick

	Salary	Spend
A	20	19
B	5	4

$$A \quad \frac{95}{100} = \frac{19}{20}$$

$$B \quad \frac{80}{100} = \frac{4}{5}$$

Sum of salary's (A + B) 25 = 43000

$$\therefore \text{Salary of B} = \frac{43000 \times 5}{25} = 8600$$

19. (b) Let the number be 100

According to question,

$$\text{New Number} = 100 \times \frac{130}{100} \times \frac{70}{100} \times \frac{70}{100}$$

$$= 63.7$$

$$\therefore \text{Percentage (Number decrease)} = 100 - 63.7$$

$$= 36.3\%$$

Nearest Percentage = 36% decrease

20. (a) Let the number be 100

According to the question

$$\text{New Number} = 100 \times \frac{70}{100} \times \frac{130}{100} \times \frac{130}{100}$$

$$= 118.3\%$$

$$\therefore \text{percentage (number increase)}$$

$$= 118.3 - 100 = 18.3\%$$

Nearest Percent = 18% increase

21. (d) Let the number be 100

According to the question,

$$\text{New Number} = 100 \times \frac{70}{100} \times \frac{130}{100} \times \frac{90}{100}$$

$$= 81.9$$

$$\therefore \text{Percentage (Number decrease)}$$

$$= 100 - 81.9 = 18.1\%$$

Nearest Percent = 18% decrease

22. (d) Trick

Commodity	25	34
Quantity	10	7
	<u>250</u>	<u>238</u>
	Difference = 12	

$$\frac{36}{100} = \frac{9}{25}$$

$$\frac{30}{100} = \frac{3}{10}$$

$$\therefore \text{Percentage (Decrease)} = \frac{12}{250} \times 100 = 4.8\%$$

23. (d) Let the Sudha's income be 100

According to question,

Income	Exp	Savings
100	80	20
↓ +30%	↓ +25%	↓
130	100	30

$$\therefore \text{Percentage (Saving increase)}$$

$$= \frac{30 - 20}{20} \times 100 = 50\%$$

24. (a) Let the Anu's Salary be 100

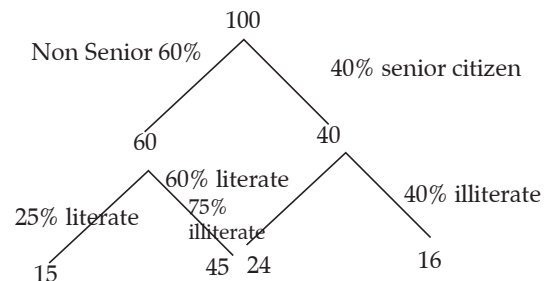
According to the question,

Income	Exp	Savings
100	90	10
↓	↓ +25%	↓ +30%
125.5	112.5	13

$$\therefore \text{Salary increase} = 25.5\%$$

25. (d) Let the total voters in constituency be 100

According to the question,



∴ Percentage (literate senior citizen < illiterate non senior citizen)

$$= \frac{45 - 24}{45} \times 100$$

$$= \frac{140}{3} = 46\frac{2}{3}\%$$

26. (b) According to the question,

A	B	C	D	E
72	60	48	120	100



$$\text{Difference} = 28\%$$

27. (c) Let the income of A be 100

Income	Spend	Savings
100	72	28
↓ +28%	↓ +25%	↓
128	90	38

∴ Increase percent of savings

$$= \frac{10}{28} \times 100 = 35.7\%$$

EXERCISE 5C

For SSC CGL & CPO Exams

1. A is 25% more than B and B is 40% less than C. If C is 30% more than D, then by what percent is A less than D? **SSC CGL TIER II 12/09/ 2019**

(a) 1.5 (b) 2.5
(c) 4 (d) 5
2. In an examination, B obtained 90% more marks than those obtained by A and A obtained 10% less marks than those obtained by C. D obtained 20% more marks than those obtained by C. By what percentage are the marks obtained by D more than those obtained by A? **SSC CGL TIER II 03/02/ 2022**

(a) $33\frac{1}{3}\%$ (b) $13\frac{1}{3}\%$
(c) $43\frac{1}{3}\%$ (d) $23\frac{1}{3}\%$
3. A person saves $33\frac{1}{3}\%$ of his income. If the saving increases by 22% and the expenditure increases by 10%, then the percentage increase in his income is:

(a) 18% (b) 14%
(c) 16% (d) 22%
4. Lucky spends 85% of her income. If her expenditure increases by $x\%$, savings increase by 60% and income increases by 26%, then what is the value of x ? **SSC CGL 23/08/ 2021 (Shift-3)**

(a) 30 (b) 24
(c) 26 (d) 20
5. Three persons A, B and C donate 10%, 7% and 9% respectively of their monthly salaries to a charitable trust. Monthly salaries of A and B are equal and the difference between the donations of A and B is ₹ 900. If the total donation by A and B is ₹ 600 more than that of C, then what is the monthly salary (in ₹) of C? **SSC CGL 23/08/ 2021 (Shift-2)**

(a) 60000 (b) 5000
(c) 45000 (d) 55000
6. Radha saves $x\%$ of her income. If her income increases by 28% and the expenditure increases by 20%, then her savings increase by 40%. What is the value of x ? **SSC CGL 23/08/ 2021 (Shift-1)**

(a) 35 (b) 40
(c) 50 (d) 25
7. Price of a one gram gold coin decreased by 10% on its initial price on Monday and increased by 20% on Tuesday and again increased by 8% on Wednesday, and 5% increase on Thursday. If the final price on Thursday is ₹ 5511.24, then the initial price (in ₹) of one gram gold coin on Monday was? **SSC CGL 20/08/ 2021 (Shift-3)**

(a) 4500 (b) 4250
(c) 4000 (d) 5000
8. The present population of a village is 15280. If the number of males increases by 25% and the number of females increases by 15%, then the population will become 18428. The difference between the present population of males and females in the village is: **SSC CGL 20/08/ 2021 (Shift-2)**

(a) 1840 (b) 1380
(c) 920 (d) 2760
9. Weight of A is 20% more than weight of B, whose weight is 30% more than weight of C. By how much percent weight of A is more than weight of C? **SSC CGL 20/08/ 2021 (Shift-1)**

(a) 69 (b) 56
(c) 44 (d) 35.89
10. In an examination, 45% of all the students who appeared are boys and the rest are girls. If 60% of the boys and 70% of the girls passed, then what is the percentage of students who failed? **SSC CGL 18/08/ 2021 (Shift-1)**

(a) 36 (b) 35.4
(c) 40 (d) 34.5
11. A sports-goods shop has tennis balls of 3 colours-red, green and white. The number of white balls is 60% more than the number of red balls and the number of green balls is 12.5% less than the number of white

14 ■ SSC Maths

balls. If the total number of balls is 120, then how many green balls are there?

SSC CGL 17/08/ 2021 (Shift-3)

- (a) 48 (b) 40
(c) 30 (d) 42

12. Rajan spent 10% of his salary on rent. He spent 20% of the remaining part of the salary on transport. After which he spent 40% of the balance of the salary on food. Further, he spends 80% of the balance on various bills. He deposits ₹ 5000 in the bank and kept the remaining ₹ 1480 for his own petty expenditure. Find the monthly salary (in ₹)

SSC CGL 17/08/ 2021 (Shift-2)

- (a) 75000 (b) 80000
(c) 82500 (d) 64800

13. The price of diesel in increased by 26%. A person wants to increase their expenditure by 15% only. By what percentage, correct to one decimal place, should he decrease his consumption?

SSC CGL 23/08/ 2021 (Shift-1)

- (a) 8.7% (b) 6.5%
(c) 7.2% (d) 9.5%

14. If A's salary is 30% more than B's salary, then by what percentage is B's salary less than that of A? (correct to one decimal place)

SSC CPO 25/11/2020 (Shift-1)

- (a) 17.5% (b) 25%
(c) 23.15% (d) 19.7%

15. If decreasing 110 by $x\%$ gives the same result as increasing 50 by $x\%$, then $x\%$ of 650 is what percentage (correct to the nearest integer) more than $(x-10)\%$ of 780?

SSC CPO 25/11/ 2020 (Shift-1)

- (a) 14% (b) 12%
(c) 17% (d) 18%

16. A number is first increased by 40% and then decreased by 25%, again increased by 15% and then decreased by 20%. What is the net increase/decrease percent in the number?

SSC CPO 24/11/ 2020 (Shift-3)

- (a) 7.2% decrease (b) 3.4% increase
(c) 6.4% increase (d) 3.4% decrease

17. If 49% of $X = Y$, then $Y\%$ of 50 is

SSC CPO 24/11/ 2020 (Shift-3)

- (a) 24.5% of X (b) 24.5% of Y
(c) 40% of Y (d) 50% of X

18. If 25% of 400 + 35% of 1260 + 27% of 1800 = 1020 + x , then the value if x lies between:

SSC CPO 24/11/ 2020 (Shift-3)

- (a) 16 to 20 (b) 6 to 10
(c) 11 to 15 (d) 0 to 5

19. A man spends 75% of his income. If his income increases by 28% and his expenditure increases by 20%, then what is the increase or decrease percentage in his saving?

SSC CPO 24/11/ 2020 (Shift-1)

- (a) 13% increase (b) 52% decrease
(c) 52% increase (d) 13% decrease

20. If A is 40% less than B and C is 40% of the sum of A and B, then by what percentage B is greater than C?

SSC CPO TIER-II (16/11/2020)

- (a) 60 (b) $40\frac{1}{8}$
(c) $56\frac{1}{4}$ (d) 36

21. Rishu saves $x\%$ of her income. If her income increases by 26% and the expenditure increases by 20%, then her savings increase by 50%. What is the value of x ?

SSC CGL Tier-II (15/11/2020)

- (a) 30 (b) 20
(c) 10 (d) 25

22. A certain number of students from school X appeared in an examination and 30% students failed. 150% more students than those from school X, appeared in the same examination from school Y. If 80% of the total number of students who appeared from X and Y passed, then what is the percentage of students who failed from Y?

SSC CGL Tier-II (15/11/2020)

- (a) 18 (b) 20
(c) 16 (d) 24

23. What is to be added to 15% of 180 so that the sum is equal to 20% of 360?

SSC CGL Tier-II (18/11/2020)

- (a) 40 (b) 60
(c) 50 (d) 45

24. If the length of a rectangle is increased by 40% and the breadth is decreased by 20%, then the area of the rectangle is increased by $x\%$. The value of x is:

SSC CGL 3/03/2020 (Shift-1)

- (a) 20 (b) 12
(c) 16 (d) 8

25. The price of cooking oil increased by 25%. Find by how much percentage a family must reduce its consumption in order to maintain the same budget?

SSC CGL 9/03/2020 (Shift-3)

- (a) 70% (b) 80%
(c) 30% (d) 20%
26. Ravi scores 72% marks in examinations. If these are 360 marks are then the maximum marks are:
SSC CGL 9/03/2020 (Shift-1)
- (a) 500 (b) 350
(c) 450 (d) 400
27. By what number must the given number be multiplied to increase the number by 25%.
SSC CGL 7/03/2020 (Shift-3)
- (a) 3 (b) $\frac{2}{5}$
(c) $\frac{5}{4}$ (d) $\frac{3}{4}$
28. What is the value of: $(0.08\% \text{ of } 0.008\% \text{ of } 8)^{\frac{1}{9}}$
SSC CPO 2019 9/12/2019 (Shift-1)
- (a) 0.8 (b) 0.2
(c) 0.64 (d) 0.08
29. If the word PHOTOGRAPH is spelt with 'F' in place of 'PH', then what would be the percentage of reduction in the number of letters?
SSC CPO 9/12/19 (Shift-1)
- (a) 25% (b) 10%
(c) 20% (d) 18%
30. Raghav spends 80% of his income. If his income increases by 12% and the savings decrease by 10%, then what will be the percentage increase in his expenditure?
SSC CGL TIER II 11/09/2019
- (a) 20.5 (b) 16
(c) 17.5 (d) 22
31. A person can save 25% of his income. If his income increases by 20% and still he saves the same amount as before, the percentage increase in his expenditure is
SSC CPO 13/12/2019 (Shift-3)
- (a) $25\frac{1}{3}$ (b) 24
(c) 25 (d) $26\frac{2}{3}$
32. The difference between 38% and 22% of a number is 3200. What is the $15\frac{1}{2}\%$ of that number?
SSC CPO 13/12/2019 (Shift-3)
- (a) 2800 (b) 3000
(c) 3100 (d) 3200
33. A is 75% less than B and C is 75% of the difference between A and B. C is what percent more than A?

SSC CPO 13/12/2019 (Shift-1)

- (a) 125 (b) 100
(c) 75 (d) 90
34. 2000 employees are assigned to complete a project. At the end of the first year 15% of the number of employees are decreased and at the end of the second year again 10% of the number of employees are decreased. However, to complete the project in time the number of employees are increased by 10% at the end of the third year. What was the number of employees working during the fourth year?
SSC CPO 12/12/2019 (Shift-3)
- (a) 1786 (b) 1685
(c) 1683 (d) 1783
35. Two persons A and B are paid a total of ₹ 2040 per week by their employer. If B is paid 140 per cent of the sum paid to A, then how much is A paid per week?
SSC CPO 12/12/2019 (Shift-3)
- (a) ₹ 750 (b) ₹ 820
(c) ₹ 850 (d) ₹ 800
36. $66\frac{2}{3}\%$ of 75% of one-eighth of a certain number is 179, then $33\frac{1}{3}\%$ of three fourth of that number is:
SSC CPO 12/12/2019 (Shift-1)
- (a) 537 (b) 787.6
(c) 859.2 (d) 716
37. A is 40% more than B and B is 60% less than C. If C is 60% more than D, then which of the following is true?
SSC CPO 12/12/2019 (Shift-1)
- (a) C is 60% more than B
(b) B is 36% less than D
(c) D is 10.4% more than A
(d) A is 54% less than C.
38. In an office 70% of the total number of employees are females. 80% of the total numbers of employees, including 85 males, got promotion. If there are 105 female employees, then percentage of female employees got promotion?
SSC CPO 12/12/2019 (Shift-1)
- (a) 30% (b) 33.33%
(c) 40% (d) 35%
39. The total numbers of male and female in a town is 70000. If the number of males is increased by 6% and number of females is increased by 4%, then the total number of males and females in the town would become 73520. What is the difference between the number of males and females in the town in the

beginning? **SSC CPO 11/12/2019 (Shift-3)**

- (a) 1500 (b) 1800
(c) 2000 (d) 1400

40. If A is 48% more than B and C is 60% less than the sum of A and B, then A is what percentage more than C? (correct to one decimal place)

SSC CPO 11/12/2019 (Shift-3)

- (a) 50.8 (b) 49.2
(c) 50.2 (d) 49.8

41. In a school, 60% of the students are boys and the rest are girls. If 20% of the number of boys failed and 65% of the number of girls passed in the examination, then the percentage of the total number of students who passed is:

SSC CPO 11/12/2019 (Shift-3)

- (a) 68 (b) 72
(c) 74 (d) 78

42. The monthly salary of a person was ₹ 1,60,000. He used to spend on three heads— Personal and family expenses (P), Taxes (T) and Education loan (E). The rest were his savings. P was 50% of the income, E was 20% of P, and T was 15% of E. When his salary got raised by 30%, he maintained the percentage level of P, but E became 30% of P and T became 20% of E. The sum of the two savings (in ₹) is:

SSC CGL Tier-2 03/02/2022

- (a) 2,11,680 (b) 1,28,160
(c) 1,18,620 (d) 1,62,810

43. Basir's working hours per day were increased by 15% and his wages per hour were increased by 20%. By how much percent did his daily earnings increase? **SSC CGL TIER II 13/09/2019**

- (a) 40 (b) 38
(c) 35 (d) 36

44. The price of oil has increased by 20%. However, its consumption decreased by $8\frac{1}{3}\%$. What is the percentage increase or decrease in the expenditure on it? **SSC CGL TIER II 13/09/2019**

- (a) Increase by 10% (b) Increase by 5%
(c) Decrease by 10% (d) Decrease by 5%

45. Monika spends 72% of her income. If her income increases by 20% and savings increase by 15%, then her expenditure increases by : (correct to 1 decimal place) **SSC CGL 4 June, 2019 (Shift-2)**

- (a) 20.8% (b) 20.2%
(c) 21.9% (d) 19.8%

SOLUTIONS 5C

1. (b) A is 25% more than B, $\frac{A}{B} = \frac{125}{100} = \frac{5}{6}$

$$\text{B is 40\% less than C, } \frac{B}{C} = \frac{60}{100} = \frac{3}{5}$$

$$\text{C is 30\% more than D, } \frac{C}{D} = \frac{130}{100} = \frac{13}{10}$$

A	B	→	C	→	D
5	6		6		6
3	←		3	5	→
13	←		13	←	13
195			234		390
					200

$$A = 195$$

$$D = 200$$

$$\text{A less than D} = \frac{5}{200} \times 100 = 2.5\%$$

2. (a) B obtained 10% more marks than obtained by A,

$$\frac{B}{A} = \frac{110}{100} = \frac{11}{10}$$

A obtained 10% less marks than obtained by C,

$$\frac{A}{C} = \frac{90}{100} = \frac{9}{10}$$

C obtained 20% more marks than obtained by C,

$$\frac{D}{C} = \frac{12}{100} = \frac{6}{5}$$

B	A	→	C	→	D
11	10		10		10
9	←		9	10	→
5	←		5	←	5
495	450		500		600

D obtained more than A

$$A = \frac{150}{450} \times 100$$

$$= \frac{100}{3} = 33\frac{1}{3}\%$$

3. (b) Saving = $33\frac{1}{3}\% = \frac{100}{3}\% = \frac{100}{300}$

Income = 300, saving = 100, expenditure = 200

$$\text{Saving increase } 22\% = \frac{100 \times 122}{100} = 122$$

$$\text{Expenditure increase } 10\% = \frac{110 \times 200}{100} = 220$$

$$\text{Total income} = 122 + 220 = 342$$

$$\text{Income increase} = 242 - 300 = 42$$

$$\text{Income increase percentage} = \frac{42}{300} \times 100 = 14\%$$

4. (d) Lucky spends 85% = $\frac{85}{100}$

Income of lucky = 100, Spend = 85, Saving = 15

Income	Saving	Expenditure
100	15	85
↓ + 26%	↓ + 60%	↓ + x%
126	14	102

$$\text{Expenditure increase } x\% = \frac{102 - 85}{85} \times 100$$

$$x = \frac{17}{85} \times 100 = 20$$

5. (b) Donations of A is 10% = $\frac{10}{100}$

Donations of B is 7% = $\frac{7}{100}$

Donations of C is 9% = $\frac{9}{100}$

	A	B	C
Salary	100	100	100
Donations	10	7	9

Salaries of A and B are equal and difference

$$= 10 - 7 = 3 = 900$$

$$1 = 300$$

Donations of A = $10 \times 300 = 3000$

Donations of B = $7 \times 300 = 2100$

Donations of A and B is ₹ 600 more than C

So, Donations of C = $5100 - 600 = ₹ 4500$

$$\text{Monthly Salary of C} = \frac{4500}{9} \times 100 = ₹ 50,000$$

6. (b) Radha's Income increase 28% = $\frac{128}{100}$

Radha's saving $x\% = 100 \times \frac{x}{100} = x$

Radha's expenditure = $100 - x$

Radha's expenditure increase 20%

$$= (100 - x) \frac{120}{100}$$

$$= \frac{6}{5}(100 - x)$$

$$\begin{aligned} \text{Radha's saving increase } 40\% &= \frac{x \times 140}{100} \\ &= \frac{7x}{5} \quad \dots(i) \end{aligned}$$

After expenditure increase her saving

$$= 128 - \frac{6}{5}(100 - x) \dots(ii)$$

from (i) and (ii)

$$128 - \frac{6}{5}(100 - x) = \frac{7x}{5}$$

$$\Rightarrow 640 - 600 - 6x = 7x$$

$$\Rightarrow x = 40$$

7. (a) Initial price of gold coin is x

Price of gold coin decreased by 10% on Monday

$$= \frac{x \times 90}{100} = \frac{9x}{10}$$

Price of gold coin increased by 20% on Tuesday

$$= \frac{90x}{100} \times \frac{120}{100} = \frac{27x}{25}$$

Price of gold coin increased by 3% on Wednesday

$$= \frac{27x}{25} \times \frac{108}{100} = \frac{729x}{625}$$

Price of gold coin increased by 5% on Thursday

$$= \frac{729x}{625} \times \frac{105}{100} = \frac{15309x}{12500}$$

Initial price of gold coin on Thursday = ₹ 5511.24

$$\text{Then, } \frac{15309x}{12500} = 5511.24$$

$$x = \frac{5511.24 \times 12500}{15309}$$

$$x = ₹ 4500$$

8. (a) Present population of village = 15280

Present population of Males = M

Present population of females = F

$$M + F = 15280 \quad \dots(i)$$

$$\text{The no. of males increase by } 25\% = \frac{125}{100} M$$

$$= \frac{5M}{4}$$

$$\text{The no. of females increase by } 15\% = \frac{115}{100} F$$

$$= \frac{23F}{20}$$

After increases the population of village = 18428

$$\frac{5M}{4} + \frac{23F}{20} = 18428$$

$$25M + 23F = 368560 \quad \dots(ii)$$

from (i) and (ii)

$$M = 8560, F = 6720$$

Difference between the present population of males and females

$$\begin{aligned} &= 8560 - 6720 \\ &= 1840 \end{aligned}$$

9. (b) Weight of A is 20% more than weight of B

$$\frac{A}{B} = \frac{120}{100} = \frac{6}{5}$$

Weight of B is 30% more than weight of C,

$$\frac{B}{C} = \frac{130}{100} = \frac{13}{10}$$

A	B	C
6	5	5
13	→ 13	10
78	65	50

The percentage weight of A is more than weight of C = $\frac{28}{50} \times 100 = 56\%$

10. (d) The boys who appeared in an examination

$$= 45\% = \frac{45}{100}$$

The girls who appeared in an examination

$$= 100 - 45 = 55$$

$$60\% \text{ boys are passed} = 45 \times \frac{60}{100} = 27$$

$$70\% \text{ girls are passed} = 55 \times \frac{70}{100} = 38.5$$

$$\text{Total students passed} = 27 + 38.5 = 65.5$$

$$\text{Failed students} = 100 - 65.5 = 34.5$$

Percentage of failed students

$$= \frac{34.5}{100} \times 100 = 34.5\%$$

11. (d) White balls is 60% more than red balls,

$$\frac{\text{white}}{\text{red}} = \frac{160}{100} = \frac{8}{5}$$

green balls is 12.5% less than white balls,

$$\frac{\text{green}}{\text{white}} = \frac{87.5}{100} = \frac{7}{8}$$

Green White Red

$$8 \quad \leftarrow \quad 8 \quad 5$$

$$7 \quad 8 \quad \rightarrow \quad 8$$

$$\text{Total balls} \Rightarrow 56 + 64 + 40 = 160$$

$$\text{Total no. of ball} = 120$$

$$\text{Number of green balls} = \frac{120}{160} \times 56 = 42$$

12. (a) Total saving of Rajan

$$= 1480 + 5000 = 6480$$

Let the total income of Rajan = ₹100x

$$\text{He spent on rent} = 100x \times \frac{10}{100} = 10x$$

$$\text{He spent on transport} = \frac{90x \times 20}{100} = 18x$$

$$\text{He spent on food} = 72x \times \frac{40}{100} = 28.8x$$

He spent on various bills

$$= 43.2x \times \frac{80}{100} = 34.56x$$

$$\begin{aligned} \text{Total expenditure} &= 10x + 18x + 28.8x + 34.56x \\ &= 91.36x \end{aligned}$$

$$\text{Remaining income} = 100 - 91.36x = 8.64x$$

$$8.64x = 6480$$

$$x = \frac{6480}{8.64} = ₹ 75,000$$

13. (a) The price of diesel is increased by 26% = $\frac{126}{100}$

Person wants to increase expenditure by

$$15\% = \frac{115}{100}$$

Person decrease his consumption

$$= 126 - 115 = 11$$

Person decrease his consumption in percentage

$$= \frac{11}{120} \times 100 = 8.7\%$$

14. (c) Salary of A is 30% more than B,

$$\frac{A}{B} = \frac{130}{100} = \frac{13}{10}$$

A	B
13	10

Salary of B is less than A

$$= \frac{3}{13} \times 100 = 23.07\%$$

$$15. (a) 110 - \frac{110x}{100} = 50 + \frac{50x}{100}$$

$$\Rightarrow 100 - 11x = 50 + 5x$$

$$\Rightarrow x = 37.5$$

$$x\% \text{ of } 650 = 650 \times \frac{37.5}{100} = 243.75$$

$$(x - 10)\% \text{ of } 780 = 27.5 \times \frac{780}{100} = 214.50$$

the percentage of $x\%$ of 650 more than $(x-10)\%$ of 780

$$\frac{29.25}{214.50} \times 100 = 13.6363 = 14\%$$

16. (d) $\frac{140}{100} \times \frac{75}{100} \times \frac{115}{100} \times \frac{80}{100} = \frac{966}{1000}$

The first number is 1000

After increasing and decreasing the number = 966

$$\begin{aligned} \text{Decrease percentage of a no} &= \frac{34}{1000} \times 100 \\ &= 3.4\% \text{ decrease} \end{aligned}$$

17. (a) $Y = 49\%$ of X

$$Y = \frac{49X}{100}$$

$$\begin{aligned} Y\% \text{ of } 50 &= 50 \times \left(\frac{49X}{100} \right) \% \\ &= 24.5\% \text{ of } X \end{aligned}$$

18. (b) 25% of 400 + 35% of 1260 + 27% of 1800

$$= 1020 + x$$

$$\frac{25}{100} \times 400 + \frac{35}{100} \times 1260 + \frac{27}{100} \times 1800 = 1020 + x$$

$$100 + 441 + 486 = 1020 + x$$

$$1027 - 1020 = x$$

$$x = 7$$

the value of x lies between 6 to 10

19. (c) A man spend 75% of his income = $\frac{75}{100}$

Income = 100, Spend = 75, Saving = 25

Income	Expenditure	Saving	
100	75	25	
↓ +28%	↓ +20%	↓	} ⇒ 13
128	90	38	
	→		

The percentage of increasing in his saving

$$= \frac{13}{25} \times 100 = 52\% \text{ increase}$$

20. (c) A is 40% less than B, $\frac{A}{B} = \frac{60}{100}$

C is 40% of the sum of A and B

$$= (60 + 100) \times \frac{40}{100} = 64$$

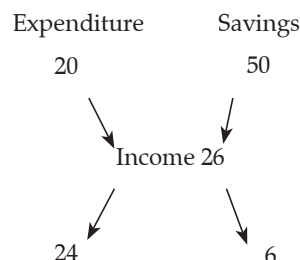
The percentage of B is greater than

$$C = \frac{36}{64} \times 100 = 56\frac{1}{4}\%$$

21. (b) Rishu expenditure increase by 20%

Rishu income increase by 26%

Rishu saving increase by 50%



Expenditure + Saving = Income

$$24 : 6$$

$$4 : 1 \Rightarrow \frac{1}{5} \times 100 = 20\%$$

The value of X is 20%

22. (c) Number of students from school X appeared in exam and 30% failed = $\frac{30}{100}$

Total Number of students in school X = 100

Passed students in school X = $100 - 30 = 70$

Total Number of students in school Y

$$= 100 \times \frac{250}{100} = 250$$

Total Number of students in both school X and Y

$$= 100 + 250$$

$$= 350$$

Total Number of students passed in both school X and Y

$$= 100 + 250 = 350$$

Total Number of students passed in both school X and Y

$$= \frac{350 \times 80}{100} = 280$$

Number of students passed in school Y

$$= 280 - 70 = 210$$

Number of students failed in school Y

$$= 250 - 210 = 40$$

The percentage of failed students in school Y

$$= \frac{40}{250} \times 100 = 16\%$$

23. (d) $x + 15\%$ of 180 = 20% of 360

$$x + \frac{15 \times 180}{100} = \frac{20}{100} \times 360$$

$$x + 27 = 72$$

$$x = 45$$

24. (b) The length of rectangle is increased by 40%

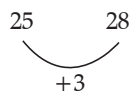
$$= \frac{140}{100} = \frac{7}{5}$$

The breadth of rectangle is decreased by 20%

$$= \frac{80}{100} = \frac{4}{5}$$

Length \Rightarrow 5 7

Breadth \Rightarrow 5 4



The area of rectangle is increased by

$$= \frac{3}{25} \times 100 = 12\%$$

25. (d) The price of cooking oil is increased by 25%

$$\frac{125}{100} = \frac{5}{4}$$

The percentage of a family reduce its consumption in oil

$$= \frac{1}{5} \times 100 = 20\%$$

26. (a) Ravi scores 72% marks in exam = 360 marks

$$72\% = 360$$

$$= \frac{360}{70} \times 100 = 500$$

27. (c) The no. multiplied to increase the no. by 25%

$$= \frac{125}{100} = \frac{5}{4}$$

28. (b) $(0.08\% \text{ of } 0.008\% \text{ of } 8)^{\frac{1}{9}}$

$$\left(\frac{8}{10000} \times \frac{8}{100000} \times 8 \right)^{\frac{1}{9}} = \left(\frac{2^3 \times 2^3 \times 2^3}{10^9} \right)^{\frac{1}{9}}$$

$$= \left(\frac{2^9}{10^9} \right)^{\frac{1}{9}} = \left(\frac{2}{10} \right)^{\frac{9}{9}} = \frac{2}{10} = 0.2$$

29. (b) PHOTOGRAPH

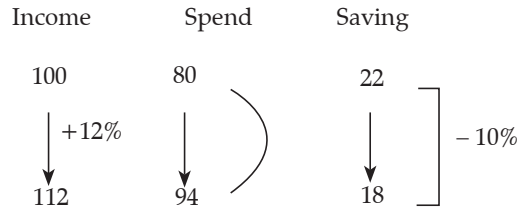
Total letters in this word = 10

Reduced letters in this word = 1

$$\text{Percentage of reduced letters} = \frac{1}{10} \times 100 = 10\%$$

30. (c) Raghav spends $80\% = \frac{80}{100}$

Income = 100, Spend = 80, Savings = 20

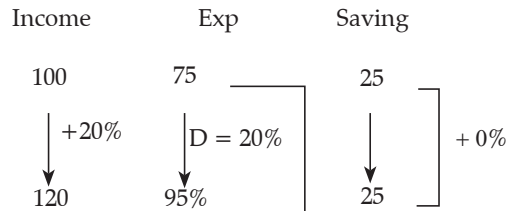


The percentage increase in expenditure

$$= \frac{14}{80} \times 100 = 17.5\%$$

31. (d) Let the income be 100

According to question,



Percentage in expenditure (increase)

$$= \frac{20 \times 100}{75} = 26\frac{2}{3}\%$$

32. (c) According to the question

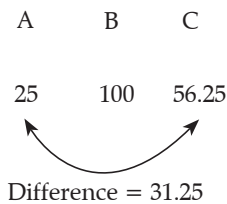
$$38\% - 22\% = 3200$$

$$\Rightarrow 16\% = 3200$$

$$\therefore \frac{31}{2}\% \text{ of the number}$$

$$= \frac{3200 \times 31}{16 \times 2} = 3100$$

33. (a) According to the question



\therefore Percentage (C is more than A)

$$= \frac{31.25 \times 100}{25} = 125\%$$

34. (c) Total number of employees = 2000

According to the question,

Number of working employees during 4th year

$$= 2000 \times \frac{85}{100} \times \frac{90}{100} \times \frac{110}{100}$$

$$= 1683$$

35. (c) According to the question,

$$\text{B is 140\% of A} = \frac{140}{100} \times A = 1.4 A$$

$$\therefore A + B = 2040$$

$$\Rightarrow A + 1.4 A = 2040$$

$$\Rightarrow 2.4 A = 2040$$

$$\Rightarrow A = \frac{2040}{2.4} = 850$$

36. (d) According to the question

Let the number be a

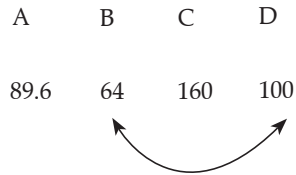
$$a \times 66\frac{2}{3}\% \times 75\% \times \frac{1}{8} = 179 \times \frac{100}{3 \times 100} \times \frac{3}{4}$$

$$a \times \frac{200}{300} \times \frac{75}{100} \times \frac{1}{8} = 179 \times \frac{1}{3} \times \frac{3}{4}$$

$$a = 716$$

37. (b) Let D is 100

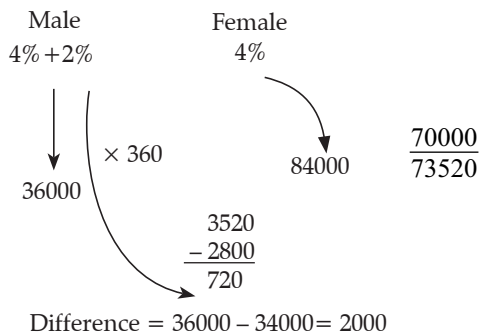
According to the question,



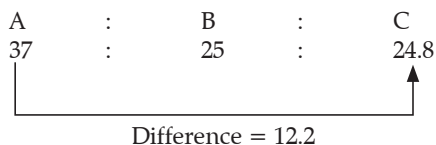
$$\text{Percent B is less than D} = \frac{100 - 64}{100}$$

$$= \frac{36}{100} \times 100 = 36\%$$

39. (c) Trick:



40. (b) Trick:



Now, $\frac{48}{100} = \frac{12}{25}$

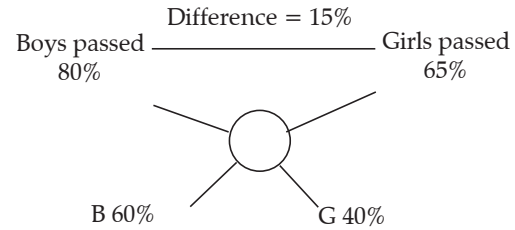
$$C \rightarrow (A + B) \times \frac{40}{100} = 62 \times \frac{40}{100}$$

$$= 24.8$$

∴ Percentage (A is more than C)

$$= \frac{12.2}{24.8} \times 100 = 49.2$$

41. (c) By alligation Method



$$\therefore 5 \text{ unit} = 15$$

$$1 \text{ unit} = \frac{15}{5} = 3$$

$$\therefore 3 \text{ unit} = 9$$

Total no. of students (Percentage)

$$= 65 + 9$$

$$= 74\%$$

42. (b) Monthly salary of person = 1,60,000

Personal + Family Ex. (P)

$$= 160000 \times \frac{50}{100} = 80000$$

$$E = 80000 \times \frac{20}{100} = 16000$$

$$T = 16000 \times \frac{15}{100} = 2400$$

$$\therefore \text{Savings} = 160000 - (80000 + 16000 + 2400)$$

$$= 61600$$

Got raise salary 30% increase

$$= 160000 \times \frac{130}{100} = 208000$$

New Expenses,

Personal and Family Expenses (P)

$$= 208000 \times \frac{50}{100}$$

$$= 104000$$

$$\text{Expense on E} = 104000 \times \frac{3}{10} = 31200$$

$$\text{Expense on T} = 31200 \times \frac{1}{5} = 6240$$

$$\begin{aligned} \therefore \text{Savings} &= 208000 - (104000 \\ &\quad + 6240 + 31200) \\ &= 66560 \end{aligned}$$

$$\begin{aligned} \therefore \text{Sum of two savings} \\ &= 61600 + 66560 = 128160 \end{aligned}$$

43. (b) Trick:

$$15 + 20 + \frac{15 + 20}{100} = 38\%$$

44. (a) Trick:

$$\frac{20}{100} \curvearrowright + = \frac{6}{5}$$

$$\frac{25}{300} \curvearrowright + = \frac{11}{12} \quad \frac{12}{60} \quad \frac{11}{66}$$

$$\text{Increase} = 6$$

$$\text{Percentage} = \frac{6}{60} \times 100 = 10\%$$

45. (c) Let Monika's income = 100

According to question

Income	Expenditure	Saving	
100	72	28	
↓ +20%	↓ +15.8%	↓	} +15
120	87.8	32.2	

$$\text{Percentage (increase)} = \frac{15.8 \times 100}{72} = 21.94\%$$