EXERCISE 8C PAGE: 100

1. The salary of a man is increased from ₹ 600 per month to ₹ 850 per month. Express the increase in salary as percent.
Solution:

Salary of a man = ₹ 600
Increased salary of a man = ₹ 850
So the amount of increase = 850 – 600 = ₹ 250
Here the percentage increase = (250 × 100)/ 600
We get
= 125/3
= 41 2/3%

2. Increase:
(i) 60 by 5%
(ii) 20 by 15%
(iii) 48 by 12 ½ %
(iv) 80 by 140%
(v) 1000 by 3.5%
Solution:

(i) 60 by 5%
It is given that
Rate of increase = 5%
So the total increase = 5% of 60
We can write it as
= 5/100 × 60
= 3
Here the increased number = 60 + 3 = 63

(ii) 20 by 15%
Increase on 20 by 15% = 20 × 15/100 = 3
So the increased number = 20 + 3 = 23

(iii) 48 by 12 ½ %
Increase on 48 by 12 ½ % = 48 × 25/2%
We can write it as
= 48 × 25/ (2 × 100)
By further calculation
= 48 × 1/8
= 6
So the increased number = 48 + 6 = 54

(iv) 80 by 140%
Increase on 80 by 140% = 80 × 140/100 = 112
So the increased number = 80 + 112 = 192

(v) 1000 by 3.5%
Increase on 1000 by 3.5% = 1000 × 3.5/100

We can write it as
= 1000 × 35/ (10 × 100)
= 35
So the increased number = 1000 + 35 = 1035

3. Decrease:
(i) 80 by 20%
(ii) 300 by10%
(iii) 50 by 12.5%
Solution:

(i) 80 by 20%
Decrease on 80 by 20% = 80 × 20/100 = 16
So the decreased number = 80 – 16 = 64

(ii) 300 by10%
Decrease on 300 by 10% = 300 × 10/100 = 30
So the decreased number = 300 – 30 = 270

(iii) 50 by 12.5%
Decrease on 50 by 12.5% = 50 × 12.5/100
We can write it as
= (50 × 125)/ (10 × 100)
= 25/4
= 6.25%
So the decreased number = 50 – 6.25 = 43.75

4. What number:
(i) when increased by 10% becomes 88?
(ii) when increased by 15% becomes 230?
(iii) when decreased by 15% becomes 170?
(iv) when decreased by 40% becomes 480?
(v) when increased by 100% becomes 100?
(vi) when decreased by 50% becomes 50?
Solution:

(i) Consider 100 as the number
So the increase = 10% = 10
Increased number = 100 + 10 = 110
If the increased number is 110 then the original number = 100
If the increased number is 88 then the original number = 100/110 × 88 = 80

(ii) Consider 100 as the number
So the increase = 15% = 15
Increased number = 100 + 15 = 115
If the increased number is 115 then the original number = 100
If the increased number is 230 then the original number = (100 × 230)/ 115 = 200

(iii) Consider 100 as the number
So the decrease = 15% = 15

Decreased number = 100 – 15 = 85
If the decreased number is 85 then the original number = 100
If the decreased number is 170 then the original number = 100/85 × 170 = 200

(iv) Consider 100 as the number
So the decrease = 40% = 40
Decreased number = 100 – 40 = 60
If the decreased number is 60 then the original number = 100
If the decreased number is 480 then the original number = (100 × 480)/ 60 = 800

(v) Consider 100 as the number
So the increase = 100% = 100
Increased number = 100 + 100 = 200
If the increased number is 200 then the original number = 100
If the increased number is 100 then the original number = (100 × 100)/ 200 = 50

(vi) Consider 100 as the number
So the decrease = 50% = 50
Decreased number = 100 – 50 = 50
If the decreased number is 50 then the original number = 100
If the decreased number is 50 then the original number = (100 × 50)/ 50 = 100

5. The price of a car is lowered by 20% to ₹ 40,000. What was the original price? Also, find the reduction in price.
Solution:

Consider ₹ 100 as the original price of the car
The price reduction = 20% = ₹ 20
So the reduced price = 100 – 20 = ₹ 80
If the reduced price of the car is ₹ 80 then the original price = ₹ 100
If the reduced price of the car is ₹ 40,000 then the original price = (100 × 40000)/ 80 = ₹ 50, 000
Reduction = 50000 – 40000 = ₹ 10, 000

6. If the price of an article is increased by 25%, the increase is ₹ 10. Find the new price.
Solution:

Consider ₹ 100 as the price of an article
The price of the article is increased = 25% = ₹ 25
So the increased price = 100 + 25 = ₹ 125
If the increase in the price is ₹ 25 then the new price = ₹ 125
If the increase in the price is ₹ 10 then the new price = (125 × 10)/ 25 = ₹ 50

7. If the price of an article is reduced by 10%, the reduction is ₹ 40. What is the old price?
Solution:

Consider ₹ 100 as the original price of an article
The price is reduced = 10% = ₹ 10
If the reduced price is ₹ 10 then the old price = ₹ 100
If the reduced price is ₹ 40 then the old price = (100 × 40)/ 10 = ₹ 400

8. The price of a chair is reduced by 25%. What is the ratio of:
(i) change in price to the old price.
(ii) old price to the new price.
Solution:

Consider ₹ 100 as the original price of the chair
The price of the chair is reduced = 25% = ₹ 25
So the reduced price = 100 – 25 = ₹ 75

(i) Ratio of change in price to the old price = 25: 100
Dividing by 25
= 1: 4

(ii) Ratio of old price to the new price = 100: 75
Dividing by 25
= 4: 3

9. If x is 20% less than y, find:
(i) x/y
(ii) y – x/ y
(iii) x/ y – x
Solution:

Consider y = 100
Reduction = 20% = 20
x = 100 – 20 = 80

(i) x/ y = 80/ 100
Dividing by 20
= 4/5

(ii) (y – x)/ y = (100 – 80)/ 100
So we get
= 20/100
Dividing by 20
= 1/5

(iii) x/ (y – x) = 80/ (100 – 80)
So we get
= 80/20
Dividing by 20
= 4 /1
= 4

10. If x is 30% more than y; find:
(i) x/y
(ii) y + x/ x
(iii) y/ y – x
Solution:

Consider y = a
We know that
x = a × (100 + 30)/ 30
By further calculation
= a × 130/100
= 13/10 a

(i) x/y = 10/ 13/10 a
We can write it as
= (a × 10)/ 13a
= 10/13

(ii) y + x/ x = (a + 13/10 a)/ 13/10 a
We can write it as
= (10 + 13)a/ (10 × 13/10 a)
By further calculation
= 23a/10 × 10/13a
So we get
= 23/13

(iii) y/ y – x = a/ (a – 13/10 a)
We can write it as
= a/ -3/10 a
So we get
= (a × 10)/ - 3a
= - 10/3

11. The weight of a machine is 40 kg. By mistake, it was weighed as 40.8 kg. Find the error percent.
Solution:

Weight of the machine = 40 kg
Error weight of the machine = 40.8 kg
Error in weight = 40.8 – 40 = 0.8 kg
So the error percent = (0.8 × 100)/ 40
We can write it as
= (8 × 100)/ (10 × 40)
= 2%

12. From a cask, containing 450 litres of petrol, 8% of the petrol was lost by leakage and evaporation. How many litres of petrol were left in the cask?
Solution:

Petrol in the cask = 450 litres
Petrol lost by leakage and evaporation = 8%
So the petrol lost = 8% of 450 litres
We can write it as
= (8 × 450)/ 100
= 36 litres
Petrol left in the cask = 450 – 36 = 414 litres

13. An alloy consists of 13 parts of copper, 7 parts of zinc and 5 parts of nickel. What is the percentage of each metal in the alloy?
Solution:

In an alloy
Copper = 13 parts
Zinc = 7 parts
Nickel = 5 parts
So the total alloy = 13 + 7 + 5 = 25 parts
Percentage of copper = 13/25 × 100 = 52%
Percentage of zinc = 7/25 × 100 = 28%
Percentage of nickel = 5/25 × 100 = 20%

14. In an examination, first division marks are 60%. A student secures 538 marks and misses the first division by 2 marks. Find the total marks of the examination.
Solution:

Marks for first division = 60%
A student gets 530 marks and misses the first division by 2 marks
Marks for first division = 538 + 2 = 540
60% of total marks = 540
We can write it as
60/100 × total marks = 540
So we get
Total marks = (540 × 100)/ 60 = 900

15. Out of 1200 pupils in a school, 900 are boys and the rest are girls. If 20% of the boys and 30% of the girls wear spectacles, find:
(i) how many pupils in all wear spectacles.
(ii) what percent of the total number of pupils wear spectacles.
Solution:

Number of pupils = 1200
Number of boys = 900
Number of girls = 1200 – 900 = 300
Number of boys who wear spectacles = 20% of 900
We can write it as
= 20/100 × 900
= 180
Number of girls who wear spectacles = 30% of 300
We can write it as
= 30/100 × 300
= 90

(i) Number of pupils in all wear spectacles = 180 + 90 = 270

(ii) Percent of the total number of pupils wear spectacles = (270 × 100)/ 1200
So we get
= 270/12
= 22.5%