Important Questions Class 8 Maths Chapter 7 Comparing Quantities

1. The ratio of 50cm to 2.5m is

(a) 10 : 1

(b) 5 : 1

(c) 1 : 5

(d) None of these

Ans: We know that, 1m = 100cm

$2.5m = 2.5 × 100 = 250cm$

Ratio of 50cm to 2.5m = $\frac{50}{250} = \frac{1}{5} = 1 : 5$

2. There are 25 computers, 16 of them are out of order. Find the percentage of computers out of order?

Ans: Percentage = $\frac{\text{No. of computers out of order}}{\text{Total no. of computers}} \times 100$

Percentage = $\frac{16}{25} \times 100$ = 64%.

3. The number of unelectrified villages in India decreased from 18,000 to 12,000 in last 6 years. What is the percentage of decrease?

(a) 30%

(b) 50%

(c) $33\frac{1}{3}$

(d) None of these.

Ans:

Percentage decrease = Old value - New valueOld value×100

$$\text{Percentage decrease} = \frac{\text{Old value} - \text{New value}}{\text{Old value}} \times 100$$

=(18,000−12,00018,000)×100 $= (\dfrac{18,000 - 12,000}{18,000}) \times 100$

=(6,00018,000)×100=1003=3313% $= (\dfrac{6,000}{18,000}) \times 100 = \dfrac{100}{3} = 33\dfrac{1}{3}\%$

4. Nandini purchased a sweater and saved Rs. 20 when a discount voucher of 25% was provided. Find the price of sweater before discount?

Ans: Let the marked price of the sweater be 'x'.

Then, 25% of x = 20

25100×x = 20 $\dfrac{25}{100} \times x = 20$

x = 20×10025 $x = \dfrac{20 \times 100}{25}$

x = 20×4 $x = 20 \times 4$

x = 80 $x = 80$

Therefore, the actual price of the sweater is Rs. 80.

5. Cost of an item is Rs. 50. It was sold with a profit of 12%. Find the selling price

(a) Rs.56

(b) Rs. 60

(c) Rs.70

(d) None of these.

Ans: We know that

Cost Price = Rs. 50

and, Profit % = 12

Therefore, Profit = $12100 \times 50 \dfrac{12}{100} \times 50$

$\Rightarrow$ Profit = 6

$\Rightarrow$ S.P. = C.P. + Profit

$\Rightarrow$ S.P. = 50 + 6

$\Rightarrow$ S.P. = Rs 56

6. The simple interest on Rs.6000 for 1 year at 4% per annum is

(a) Rs.126.50

(b) Rs.240

(c) Rs.43

(d) None of these

Ans: S.I. = $PTR100 = 6000 \times 1 \times 4100 = 240 S.I. = \dfrac{PTR}{100} = \dfrac{6000 \times 1 \times 4}{100} = 240$

7. A school trip is being planned in a school for class VIII. Girls are 60% of the total strength and are 18 in number. Find the ratio of number of boys to number of girls.

Ans: Let 'x' be the total number of students.

Thus, number of girls = 60% of x = 18

$60100 \times x = 18 \dfrac{60}{100} \times x = 18$

$x = 180060 x = \dfrac{1800}{60}$

x = 30x = 30

Number of boys = (Total number of students) - (Total number of girls)

= 30 – 18

= 12.

Hence ratio of number of boys to girls is

= 12 : 18

= 2 : 3.

8. In a constituency there are 120 voters 90 of them voted Yes. What percent voted Yes?

Ans: Given:

Number of voters = 120

Number of voters who voted Yes = 90

Voted percentage = No. of voters voted YesTotal number of voters×100

$$\text{Voted percentage } = \frac{\text{No. of voters voted Yes}}{\text{Total number of voters}} \times 100$$

= 90120×100 $= \dfrac{90}{120} \times 100$

=75% $= 75\%$

9. If Rs. 250 is divided among Rakshith, Ravi and Raju. So that Rakshith gets 3 parts, Ravi gets 2 parts and Raju gets 5 parts. How much money will each get in percentages?

Ans: Given: total amount = 250

Total number of parts = 10

Names	No. of parts each get	Amount of money	Percentage

Rakshith	3 parts	$\frac{3}{10} \times 250 = 75$	$\frac{75}{250} \times 100 = 30\%$
Ravi	2 parts	$\frac{2}{10} \times 250 = 50$	$\frac{50}{250} \times 100 = 20\%$
Raju	5 parts	$\frac{5}{10} \times 250 = 125$	$\frac{125}{250} \times 100 = 50\%$

10. My grandmother says in her childhood milk was at Rs.2 per litre. It was Rs.36 per litre today. By what percentage has the price gone up?

Ans: Given:

Old value = Rs. 2 per litre

New price = Rs. 36 per litre

$$\text{Percentage increase} = \frac{\text{New price - old price}}{\text{old price}} \times 100 = \frac{36 - 2}{36} \times 100 = \frac{34}{36} \times 100 = 94.44\%.$$

11. The cost of a toy car is Rs. 140. If the shopkeeper sells it at a loss of 10%. Find the price at which it is sold.

Ans: Given:

C.P. of toy car = Rs. 140

Loss% = 10%

S.P. = ?

We know that,

$$\text{Loss } = \frac{\text{Lossn\%} \times \text{C.P.}}{100} = \frac{10}{100} \times 140 = \text{Rs. } 14$$

Loss = C.P. – S.P.

S.P. = C.P. – Loss

S.P. = 140 – 14

S.P. = Rs.126

12. Rashida purchased an air-conditioner for Rs. 3400 including a tax of 10%. Find the actual price of the air conditioner before VAT was added.

Ans: Let 'x' be the cost before adding VAT.

VAT = 10% of x = 0.1x

Cost after adding VAT = x + 0.1x = 1.1x

Given: cost = Rs.3,400

$1.1x = Rs. 3400$

$x = \dfrac{3400}{1.1} = 3090.9$

Thus, the price of an air-conditioner = Rs. 3090.9.

13. Seema deals with second hand goods. She bought a second hand refrigerator for Rs. 5000. She spends RS.100 on transportation and Rs.600 on its repair. She sells the refrigerator for Rs. 7100. Find

(a) Total cost price

(b) Profit or loss percent.

Ans:

(a) From the given data,

Total cost price = Purchasing price + transportation charge+ repair charge

Total cost price = 5000 + 100 + 600

= Rs. 5700.

(b) Given: S.P. = Rs. 7100.

Since, S.P. > C.P., There is a profit.

Profit = S.P. – C.P.

= 7100 – 5700

= Rs. 1400

Profit % = Profit × 100C.P.=14005700×100=24.5%

$$\text{Profit \%} = \frac{\text{Profit} \times 100}{\text{C.P.}} = \frac{1400}{5700} \times 100 = 24.5\%$$

14. At what rate of simple interest will the sum double itself in 2 years?

Ans: We know that,

A = S.I. + P

Where, S.I. = PRT100S.I. $= \dfrac{\text{PRT}}{100}$

Given: A = 2 × principle = 2PA = 2 × principle = 2P

Time = t = 2 years

R = ?

Formula becomes 2P = S.I. + P

2P = PRT100+P2P $= \dfrac{\text{PRT}}{100} + \text{P}$

2P - P = PRT1002P - P $= \dfrac{\text{PRT}}{100}$

P = P×2×R100P $= \dfrac{\text{P} \times 2 \times \text{R}}{100}$

R = 1002=50%R $= \dfrac{100}{2} = 50\%$

R = 50% R = 50%

Therefore, at the rate of 50%, the sum will double.

15. In what time will Rs. 1600 amount to Rs. 1768 at 6% per annum simple interest?

Ans: Given:

Principle = Rs. 1600

Amount = Rs. 1768

Rate = 6% per year

Time = ?

A = S.I. + P

$$1768 = \frac{PTR}{100} + P$$

$$1768 = \frac{1600 \times T \times 6}{100} + 1600$$

$$1768 - 1600 = \frac{1600 \times T \times 6}{100}$$

$$168 \times 100 = 1600 \times T \times 6$$

$$T = \frac{168 \times 100}{1600 \times 6}$$

$$T = 1.75 \text{ years}$$

$$T = 1\frac{3}{4} \text{years}$$

16. What amount Harish has to pay at the end of 3 years of Rs. 40,000 at an interest of 16% compounded annually?

Ans: We know that, formula for compound interest,

$$A = P\left(1 + \frac{R}{100}\right)^{n}$$

Where, P = principle

N = no. of years

P = Rs. 40,000, R = 16%, n = 2.

$A = 40000 \left(1 + \dfrac{16}{100} \right)^2$

$A = 40000 \left(1 + 0.16 \right)^2$

$A = 40000(1.16)^2$

$A = 40000 \times 1.3456$

$A = Rs.\ 53{,}824$

Amount paid by Harish at the end of 2 years is Rs. 53,824.

17. Mahesh sells two tables for Rs. 3000 each. He gains 20% on one table and on the other he loses 20%. Find his gain or loss percent on whole transaction.

Ans: For the first table: given:

S.P. = Rs. 3000

Gain% = 20% = $\dfrac{20}{100}$

Gain percent implies increased percent on cost price.

For Rs.100 cost price, the gain = Rs.20

S.P. = C.P. + gain

S.P. = 100 + 20 = Rs.120

Thus, S.P. is Rs. 120 when C.P. is Rs.100

Therefore, for S.P. of Rs. 3000, the cost price will be

$= \dfrac{3000 \times 100}{120} = Rs.2500$

For second table,

S.P. = Rs.300

Loss percent = 20% = 20100$\frac{20}{100}$

Loss percent decreases percent on cost price.

For Rs.100 of C.P., loss = Rs.20

S.P. = C.P. – loss = 100 – 20 = Rs.80.

Thus, S.P. is Rs.80 when C.P. is Rs.100

For S.P. of Rs.3000, the cost price is given by

=3000×10080=Rs.3750 $= \dfrac{3000 \times 100}{80} = $ Rs.3750

Total cost price = 2500 + 3750 = 6250

Total S.P. = 2500 + 3750 = 6000

Here, S.P. < C.P., Hence loss is Occured

Loss = C.P. – S.P. = 6250 – 6000 = 250

Loss percent = lossC.P.×100=2506250×100=4%$\dfrac{loss}{C.P.} \times 100 = \dfrac{250}{6250} \times 100 = 4\%$

Therefore, there is a loss of 4% on whole transaction.

18. Mary goes to a departmental store and buys the following goods.

Cosmetics worth of Rs. 345

Medicines worth of Rs. 228

Stationery worth of Rs. 170. If the sales tax is chargeable at the rate of 10% on cosmetics, 78% on medicines, 5% on stationary. Find the total amount to be paid by Mary.

Ans: Cost of cosmetics = Rs. 345

Sales tax on cosmetics = $

Rs[345×10100]Rs $\left[345 \times \dfrac{10}{100} \right]$

=Rs. 34.50 $= $ Rs. 34.50

$Total cost of cosmetics = 345 + 34.5

=Rs. 379.50

Total cost of medicines = Rs. 228 + 7% of 228

=228+7100×228 $= 228 + \dfrac{7}{100} \times 228$

=228+15.96 $= 228 + 15.96$

=Rs. 243.96 $= $ Rs. 243.96

Total cost of stationary = Rs. 170 + 5% of 170

=170+5100×170 $= 170 + \dfrac{5}{100} \times 170$

=170+8.50 $= 170 + 8.50$

=Rs. 178.50 $= $ Rs. 178.50

Thus, total amount of money to be paid by Mary = 379.50 + 243.96 + 178.50

=Rs. 801.96

19. Prateeksha went to a shopping mall to purchase a saree. Marked price of the saree is Rs.2000. Shop owner gave a discount of 20% and then 5%.Find the single discount equivalent to these 2 successive discounts.

Ans: Marked price of the saree = Rs. 2000

First discount = 20% of 2000

=20100×2000 $= \dfrac{20}{100} \times 2000$

=Rs.400 $= $ Rs.400

=2000−400 $= 2000 - 400$

After First Discount, Price = Rs.1600

Second Discount = 5% after first discount

$$=5100 \times 1600 = \frac{5}{100} \times 1600$$

$$=Rs.80 = Rs.80$$

Price of Saree after second discount is Rs.1520

20. Rajanna purchased 25 dozen bananas for RS. 625. He spent Rs. 125 for transportation. He could not sell 5 dozen bananas as they were spoiled. He sold the remaining banana's at Rs. 30 for each dozen. Find loss and profit percent.

Ans: Total cost price = Cost price of bananas + transportation charge

$$=Rs. 625 + Rs. 125 = Rs. 750$$

Number of dozens of bananas sold = No. of purchased – No. of spoiled

$$= 25 - 5$$

$$= 20$$

Given: 1 dozen = Rs.30

Therefore, S.P. = $20 \times 30 = Rs.600$

Since, S.P. < C.P., it is a loss

Loss = C.P. – S.P. = 750 – 600 = 150

$$Loss\% = \frac{loss}{C.P.} \times 100 = \frac{150}{750} \times 100 = 20\%$$

21. A girl bought 16 dozen ball pens and sold them at a loss equal to S.P of 8 ball pens. Find her loss % and S.P of 1 dozen ball pens if she purchased these 16 dozen ball pen's for Rs 576.

Ans: Cost price of 16 dozen ball pens = Rs. 576

Cost price of one dozen = 57616=$36\dfrac{576}{16} = 36$

Cost price of 1 pen = 3612=$3\dfrac{36}{12} = 3$

Let 'x' be the S.P. of each ball pen.

Total number of pens = 16×12=19216 × 12 = 192

Thus, total S.P. of 192 pens = 192x.

Total S.P. = 576 – S.P. of 8 ball pens

192x = 576−8x192x = 576 − 8x

192x + 8x = 576192x + 8x = 576

200x = 576200x = 576

x = 576200x = $\dfrac{576}{200}$

x = 2.88x = 2.88

Loss = 8 × 2.88 = Rs. 23.04Loss = 8 × 2.88 = Rs. 23.04

(a) Loss% = 23.04576×100=4%(a) Loss% = $\dfrac{23.04}{576}$ × 100 = 4%

(b) S.P. of 1 pen = 2.88 (b) S.P. of 1 pen = 2.88

S.P. of 1 dozen pen = 2.88 × 12 = Rs. 34.56S.P. of 1 dozen pen = 2.88 × 12 = Rs. 34.56

22. In 1995, the price of 1litre of a certain kind of petrol was Rs. 54.9. By 1996, the price of 1 litre of the same kind of petrol has risen to Rs 56.3. The peroentage increase for each of the next four years is expected to be the same as in between 1995 to 1996. What is the price of 1 hr of petrol expected to be in the year 2000?

Ans:

Year: Price of 1 litre of petrol

1995:   Rs. 54.9

1996: Rs. 56.3

Percentage increase = Increase in valueOld value×100

$$\text{Percentage increase} = \frac{\text{Increase in value}}{\text{Old value}} \times 100$$

=56.3−54.954.9×100 $= \dfrac{56.3 - 54.9}{54.9} \times 100$

=1.454.9×100 $= \dfrac{1.4}{54.9} \times 100$

=2.55% $= 2.55\%$

Increase amount = 2.55100=Rs.0.0255 $\text{Increase amount} = \dfrac{2.55}{100} = \text{Rs.}0.0255$

Therefore, price in 2000 is

=56.3×(1+0.0255)4 $= 56.3 \times (1 + 0.0255)^4$

=56.3(1.0255)4 $= 56.3 (1.0255)^4$

=62.3perlitre $= 62.3 \, per litre$

23. Simple interest on a sum of money for 3 years at 8% per annum is Rs.2400. What will be the compound interest on that sum at the same rate for the same period?

Ans:

Given: SI = 2400

T = 3 years

R = 8% per year

P = ?

CI = ?

SI = PTR100 $SI = \dfrac{PTR}{100}$

$P = 2400 \times 1003 \times 8 P = \dfrac{2400 \times 100}{3 \times 8}$

$P = Rs.\ 10000 P = Rs.\ 10000$

$A = P(1+R100)3=(1+8100)3 A = P\left(1 + \dfrac{R}{100}\right)^3 = \left(1 + \dfrac{8}{100}\right)^3$

$A = 10000(1 + 0.08)3 A = 10000(1 + 0.08)^3$

$A = 12{,}597.12 A = 12{,}597.12$

We know that,

$CI = A - PCI = A - P$

$= 12{,}597.12 - 10000 = 12{,}597.12 - 10000$

$= 2597.12 = 2597.12$

24. Find the compound interest on Rs. 320000 for one year at the rate of 20% per annum, if the interest is compounded quarterly.

Ans: We know that,

$A = P(1+R100)n A = P\left(1 + \dfrac{R}{100}\right)^n$

Since, compound interest should be computed quarterly, then n = 4n and r = r/4

Rewriting the formula, we get,

$A = P(1+(R/4)100)4n A = P\left(1 + \dfrac{(R/4)}{100}\right)^{4n}$

$A = 320000(1+0.204)4 A = 320000\left(1 + \dfrac{0.20}{4}\right)^4$

$A = 320000(1.05)4 A = 320000(1.05)^4$

$A = 388962 A = 388962$

$CI = A - PCI = A - P$

CI = 388962 - 320000 $\mathrm{CI} = 388962 - 320000$

CI = 68962 $\mathrm{CI} = 68962$

25. The simple interest on a certain amount of money for 3 years at 8% per annum is half the compound interest on Rs. 4,000 for 2 years at 10% per annum. What is the sum placed on simple interest?

Ans:

We know that, compound interest on Rs. 4,000 for 2 years at 10% = A − P

$$= P(1+R100)n - P = P\left(1 + \frac{R}{100}\right)^n - P$$

$$= P[(1+R100)n - 1] = P\left[\left(1 + \frac{R}{100}\right)^n - 1\right]$$

$$= 4000[(1+10100)2 - 1] = 4000\left[\left(1 + \frac{10}{100}\right)^2 - 1\right]$$

$$= 4000[121100 - 1] = 4000\left[\frac{121}{100} - 1\right]$$

$$= 4000[21100] = 4000\left[\frac{21}{100}\right]$$

= Rs. 840 $= \mathrm{Rs.}\ 840$

S.I. on unknown sum = 12×840 = Rs.420 $\frac{1}{2} \times 840 = \mathrm{Rs.}420$

Time = 3 years, Rate = 8% per annum

$$\mathrm{sum} = \text{interest} \times 100 \text{rate} \times \text{time} \quad \mathrm{sum} = \frac{\text{interest} \times 100}{\text{rate} \times \text{time}}$$

$$\mathrm{sum} = 420 \times 1008 \times 3 \quad \mathrm{sum} = \frac{420 \times 100}{8 \times 3}$$

sum = Rs. 1750 $\mathrm{sum} = \mathrm{Rs.}\ 1750$