

**NCERT Solutions for Class 8 Maths Chapter 8:** NCERT Solutions for Class 8 Maths Chapter 8, "Comparing Quantities," help students understand how to compare different amounts. This chapter covers important topics like percentages, discounts, profit and loss, simple and compound interest, and ratios and proportions.

The solutions explain everything step-by-step, making it easy for students to solve problems and apply these concepts in real life. By using these solutions, students can improve their math skills, understand how to compare quantities better, and do well in their exams.

## **NCERT Solutions for Class 8 Maths Chapter 8 Overview**

The NCERT Solutions for Class 8 Maths Chapter 8, "Comparing Quantities," prepared by the subject experts of Physics Wallah, provide clear and easy-to-follow explanations for various mathematical concepts.

Each solution is designed to help students understand and solve problems step-by-step. With these expertly prepared solutions, students can improve their math skills, gain confidence in comparing different quantities, and perform better in their exams.

## **NCERT Solutions for Class 8 Maths Chapter 8 PDF**

The NCERT Solutions for Class 8 Maths Chapter 8, "Comparing Quantities," are available in a PDF format through the link provided below.

These solutions help students understand and solve problems effectively, enhancing their math skills and confidence. Accessing this PDF can assist students in studying efficiently and performing better in their exams.

### **NCERT Solutions for Class 8 Maths Chapter 8 PDF**

## **NCERT Solutions for Class 8 Maths Chapter 8 Comparing Quantities**

Here we have provided NCERT Solutions for Class 8 Maths Chapter 8 Comparing Quantities for the ease of students so that they can prepare better for their exams.

### **NCERT Solutions for Class 8 Maths Chapter 8 Comparing Quantities Exercise 8.1 Page No: 119**

**1. Find the ratio of the following:**

**(a) Speed of a cycle 15 km per hour to the speed of a scooter 30 km per hour.**

**(b) 5 m to 10 km**

**(c) 50 paise to ₹ 5**

**Solution:**

a) Ratio of the speed of the cycle to the speed of the scooter =  $15/30 = \frac{1}{2} = 1:2$

b) Since 1 km = 1000 m

$$5\text{m}/10\text{ km} = 5\text{ m}/(10 \times 1000)\text{m} = 5/10000 = 1/2000 = 1:2000$$

The required ratio is 1:2000

c) Since, ₹1 = 100 paise

$$50\text{ paise}/₹5 = 50/(5 \times 100) = 50/500 = 1/10 = 1:10$$

The required ratio is 1:10

**2. Convert the following ratio to percentages:**

**a) 3:4**

**b) 2:3**

**Solution:**

$$\text{a) } 3:4 = \frac{3}{4} = \frac{3}{4} \times 100\% = 0.75 \times 100\% = 75\%$$

$$\text{b) } 2:3 = \frac{2}{3} = \frac{2}{3} \times 100\% = 0.666 \times 100\% = 66.66\% = 66\frac{2}{3}\%$$

**3. 72% of 25 students are good in mathematics. How many are not good in mathematics?**

**Solution:**

It's given that 72% of 25 students are good in mathematics

So, the percentage of students who are not good in mathematics =  $(100 - 72)\%$

$$= 28\%$$

Here, the number of students who are good in mathematics =  $72/100 \times 25 = 18$

Thus, the number of students who are not good in mathematics =  $25 - 18 = 7$

[Also,  $28\%$  of 25 =  $28/100 \times 25 = 7$ ]

Therefore, 7 students are not good in mathematics.

**4. A football team won 10 matches out of the total number of matches they played. If their win percentage was 40, then how many matches did they play in all?**

**Solution:**

Let the total number of matches played by the team be  $x$ .

Given that the team won 10 matches and the winning percentage of the team was 40%.

$$\Rightarrow 40/100 \times x = 10$$

$$40x = 10 \times 100$$

$$40x = 1000$$

$$x = 1000/40$$

$$= 100/4$$

$$= 25$$

Therefore, the team played 25 matches.

**5. If Chameli had ₹600 left after spending 75% of her money, how much did she have in the beginning?**

**Solution:**

Let the amount of money which Chameli had, in the beginning, be  $x$

Given that, after spending 75% of ₹ $x$ , she was left with ₹600

$$\text{So, } (100 - 75)\% \text{ of } x = ₹600$$

$$\text{Or, } 25\% \text{ of } x = ₹600$$

$$25/100 \times x = ₹600$$

$$x = ₹600 \times 4$$

$$= ₹2400$$

Therefore, Chameli had ₹2400 in the beginning.

**6. If 60% of people in the city like cricket, 30% like football and the remaining like other games, then what per cent of the people like other games? If the total number of people is 50 lakhs, find the exact number who like each type of game.**

**Solution:**

Percentage of people who like other games =  $(100 - 60 - 30)\%$

=  $(100 - 90)\%$

= 10%

Total number of people = 50 lakhs

So,

Number of people who like cricket =  $60/100 \times 50 = 30$  lakhs

Number of people who like football =  $30/100 \times 50 = 15$  lakhs

Number of people who like other games =  $10/100 \times 50 = 5$  lakhs

### **NCERT Solutions for Class 8 Maths Chapter 8 Comparing Quantities Exercise 8.2 Page No: 125**

**1. A man got a 10% increase in his salary. If his new salary is ₹1,54,000, find his original salary.**

**Solution:**

Let the original salary be  $x$

Given that, the new salary is ₹1,54,000

Original salary + Increment = New salary

Given that the increment is 10% of the original salary

So,  $(x + 10/100 \times x) = 154000$

$x + x/10 = 154000$

$11x/10 = 154000$

$x = 154000 \times 10/11$

= 140000

Therefore, the original salary was ₹1,40,000.

**2. On Sunday, 845 people went to the zoo. On Monday, only 169 people went. What is the per cent decrease in the number of people visiting the zoo on Monday?**

**Solution:**

Given that on Sunday, 845 people went to the zoo, and on Monday, 169 people went to the zoo.

Decrease in the number of people =  $845 - 169 = 676$

Thus,

Percentage decrease =  $(\text{Decrease in the number of people} / \text{Number of people who went to the zoo on Sunday}) \times 100\%$

$$= (676/845 \times 100)\%$$

$$= 80\%$$

**3. A shopkeeper buys 80 articles for ₹ 2,400 and sells them for a profit of 16%. Find the selling price of one article.**

**Solution:**

Given that the shopkeeper buys 80 articles for ₹ 2,400

Cost of one article =  $2400/80 = ₹ 30$

Profit percentage = 16%

Profit percentage =  $\text{Profit} / \text{C.P.} \times 100$

$$16 = \text{Profit} / 30 \times 100$$

$$\text{Profit} = (16 \times 30) / 100$$

$$= ₹ 4.8$$

Therefore, the selling price of one article = C.P. + Profit

$$= ₹ (30 + 4.80)$$

$$= ₹ 34.80$$

**4. The cost of an article was ₹ 15,500. ₹ 450 was spent on its repairs. If it is sold for a profit of 15%, find the selling price of the article.**

**Solution:**

The total cost of an article = Cost + Overhead expenses

$$= ₹15500 + ₹450$$

$$= ₹15950$$

Profit percentage = 15%

Profit percentage = Profit/C.P. x 100

$$15 = \text{Profit}/15950 \times 100$$

$$\text{Profit} = (15 \times 15950)/100$$

$$= 2392.50$$

Therefore, the selling price of the article = C.P. + Profit

$$= ₹(15950 + 2392.50)$$

$$= ₹18342.50$$

**5. A VCR and TV were bought for ₹ 8,000 each. The shopkeeper made a loss of 4% on the VCR and a profit of 8% on the TV. Find the gain or loss per cent on the whole transaction.**

**Solution:**

C.P. of a VCR = ₹ 8000

The shopkeeper made a loss of 4 % on VCR

This means if C.P. is ₹ 100, then S.P. is ₹ 96.

When C.P. is ₹ 8000,

$$\text{S.P.} = (96/100 \times 8000) = ₹ 7680$$

C.P. of a TV = ₹ 8000

The shopkeeper made a profit of 8 % on TV.

This means that if C.P. is ₹ 100, then S.P. is ₹ 108.

When C.P. is ₹ 8000,

$$\text{S.P.} = (108/100 \times 8000) = ₹ 8640$$

$$\text{Total S.P.} = ₹ 7680 + ₹ 8640 = ₹ 16320$$

$$\text{Total C.P.} = ₹ 8000 + ₹ 8000 = ₹ 16000$$

Since, total S.P. > total C.P.  $\Rightarrow$  profit

$$\text{Profit} = ₹ 16320 - ₹ 16000 = ₹ 320$$

$$\text{Profit \% on the whole transaction} = \text{Profit/Total CP} \times 100$$

$$= 320/16000 \times 100$$

$$= 2\%$$

Therefore, the shopkeeper had a gain of 2% on the whole transaction.

**6. During a sale, a shop offered a discount of 10% on the marked prices of all the items. What would a customer have to pay for a pair of jeans marked at ₹ 1450 and two shirts marked at ₹ 850 each?**

**Solution:**

$$\text{Total marked price} = ₹ (1,450 + 2 \times 850)$$

$$= ₹ (1,450 + 1,700)$$

$$= ₹ 3,150$$

Given that, the discount percentage = 10%

$$\text{Discount} = ₹ (10/100 \times 3150) = ₹ 315$$

Also, Discount = Marked price – Sale price

$$₹ 315 = ₹ 3150 - \text{Sale price}$$

$$\therefore \text{Sale price} = ₹ (3150 - 315)$$

$$= ₹ 2835$$

Therefore, the customer will have to pay ₹ 2,835.

**7. A milkman sold two of his buffaloes for ₹ 20,000 each. On one, he made a gain of 5% and on the other, a loss of 10%. Find his overall gain or loss.**

**(Hint: Find the C.P. of each)**

**Solution:**

S.P. of each buffalo = ₹ 20,000

The milkman made a gain of 5% while selling one buffalo

This means if C.P. is ₹ 100, then S.P. is ₹ 105.

C.P. of one buffalo =  $100/105 \times 20000$

= ₹ 19,047.62

Also, the second buffalo was sold at a loss of 10%

This means if C.P. is ₹ 100, then S.P. is ₹ 90

∴ C.P. of other buffalo =  $100/90 \times 20000$

= ₹ 22222.22

Total C.P. = ₹ 19047.62 + ₹ 22222.22 = ₹ 41269.84

Total S.P. = ₹ 20000 + ₹ 20000 = ₹ 40000

Loss = ₹ 41269.84 – ₹ 40000 = ₹ 1269.84

Therefore, the overall loss of milkman was ₹ 1,269.84

**8. The price of a TV is ₹ 13,000. The sales tax charged on it is at the rate of 12%. Find the amount that Vinod will have to pay if he buys it.**

**Solution:**

On ₹ 100, the tax to be paid = ₹ 12

Here, on ₹ 13000, the tax to be paid will be =  $12/100 \times 13000$

= ₹ 1560

Required amount = Cost + Sales Tax

= ₹ 13000 + ₹ 1560

= ₹ 14560

Therefore, Vinod will have to pay ₹ 14,560 for the TV.

**9. Arun bought a pair of skates at a sale where the discount given was 20%. If the amount he pays is ₹ 1,600, find the marked price.**

**Solution:**

Let the marked price be  $x$

Discount percent = Discount/Marked Price  $\times 100$

$$20 = \text{Discount}/x \times 100$$

$$\text{Discount} = 20/100 \times x$$

$$= x/5$$

Also,

Discount = Marked price – Sale price

$$x/5 = x - ₹ 1600$$

$$x - x/5 = 1600$$

$$4x/5 = 1600$$

$$x = 1600 \times 5/4$$

$$= 2000$$

Therefore, the marked price was ₹ 2000.

**10. I purchased a hair dryer for ₹ 5,400, including 8% VAT. Find the price before VAT was added.**

**Solution:**

The price includes VAT

So, 8% VAT means that if the price without VAT is ₹ 100,

Then, the price including VAT will be ₹ 108

When price including VAT is ₹ 108, original price = ₹ 100

When price including VAT is ₹ 5400, original price = ₹  $(100/108 \times 5400)$

$$= ₹ 5000$$

Therefore, the price of the hair dryer before the addition of VAT was ₹ 5,000.

**1. Calculate the amount and compound interest on**

**(a) ₹ 10,800 for 3 years at  $12\frac{1}{2}$  % per annum compounded annually.**

**Solution:**

Principal (P) = ₹ 10,800

Rate (R) =  $12\frac{1}{2}$  % =  $25/2$  % (annual)

Number of years (n) = 3

Amount (A) =  $P(1 + R/100)^n$

$$= 10800(1 + 25/200)^3$$

$$= 10800(225/200)^3$$

$$= 15377.34375$$

$$= ₹ 15377.34 \text{ (approximately)}$$

$$\text{C.I.} = A - P = ₹ (15377.34 - 10800) = ₹ 4,577.34$$

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**(b) ₹ 18000 for  $2\frac{1}{2}$  years at 10% per annum compounded annually.**

**Solution:**

Principal (P) = ₹ 18,000

Rate (R) = 10% annual

Number of years (n) =  $2\frac{1}{2}$

The amount for 2 years and 6 months can be calculated by calculating the amount for 2 years using the compound interest formula, then calculating the simple interest for 6 months on the amount obtained at the end of 2 years.

First, the amount for 2 years has to be calculated

Amount, A =  $P(1 + R/100)^n$

$$= 18000(1 + 1/10)^2$$

$$= 18000(11/10)^2$$

$$= ₹ 21780$$

By taking ₹ 21780 as principal, the S.I. for the next  $\frac{1}{2}$  year will be calculated

$$\text{S.I.} = (21780 \times \frac{1}{2} \times 10)/100$$

$$= ₹ 1089$$

$$\text{Hence, the interest for the first 2 years} = ₹ (21780 - 18000) = ₹ 3780$$

$$\text{And, interest for the next } \frac{1}{2} \text{ year} = ₹ 1089$$

$$\text{Total C.I.} = ₹ 3780 + ₹ 1089$$

$$= ₹ 4,869$$

Therefore,

$$\text{Amount, } A = P + \text{C.I.}$$

$$= ₹ 18000 + ₹ 4869$$

$$= ₹ 22,869$$

**(c) ₹ 62500 for  $1\frac{1}{2}$  years at 8% per annum compounded half yearly.**

**Solution:**

$$\text{Principal (P)} = ₹ 62,500$$

$$\text{Rate} = 8\% \text{ per annum or } 4\% \text{ per half-year}$$

$$\text{Number of years} = 1\frac{1}{2}$$

There will be 3 half-years in  $1\frac{1}{2}$  years

$$\text{Amount, } A = P(1 + R/100)^n$$

$$= 62500(1 + 4/100)^3$$

$$= 62500(104/100)^3$$

$$= 62500(26/25)^3$$

$$= ₹ 70304$$

$$\text{C.I.} = A - P = ₹ 70304 - ₹ 62500 = ₹ 7,804$$

**(d) ₹ 8000 for 1 year at 9% per annum compound half yearly.**

**(You can use the year-by-year calculation using S.I. formula to verify)**

**Solution:**

Principal (P) = ₹ 8000

Rate of interest = 9% per annum or  $9/2\%$  per half-year

Number of years = 1 year

There will be 2 half-years in 1 year

Amount,  $A = P(1 + R/100)^n$

$$= 8000(1 + 9/200)^2$$

$$= 8000(209/200)^2$$

$$= ₹ 8736.20$$

$$\text{C.I.} = A - P = ₹ 8736.20 - ₹ 8000 = ₹ 736.20$$

**(e) ₹ 10000 for 1 year at 8% per annum compounded half yearly.**

**Solution:**

Principal (P) = ₹ 10,000

Rate = 8% per annum or 4% per half-year

Number of years = 1 year

There are 2 half-years in 1 year

Amount,  $A = P(1 + R/100)^n$

$$= 10000(1 + 4/100)^2$$

$$= 10000(1 + 1/25)^2$$

$$= 10000(26/25)^2$$

$$= ₹ 10816$$

$$\text{C.I.} = A - P = ₹ 10816 - ₹ 10000 = ₹ 816$$

**2. Kamala borrowed ₹ 26400 from a Bank to buy a scooter at a rate of 15% p.a. compounded yearly. What amount will she pay at the end of 2 years and 4 months to clear the loan?**

**(Hint: Find A for 2 years with interest compounded yearly and then find S.I. on the 2nd year amount for 4/12 years.)**

**Solution:**

Principal (P) = ₹ 26,400

Rate (R) = 15% per annum

Number of years (n) = 2 4/12

The amount for 2 years and 4 months can be calculated by first calculating the amount for 2 years using the compound interest formula, then calculating the simple interest for 4 months on the amount obtained at the end of 2 years.

First, the amount for 2 years has to be calculated

$$\text{Amount, } A = P(1 + R/100)^n$$

$$= 26400(1 + 15/100)^2$$

$$= 26400(1 + 3/20)^2$$

$$= 26400(23/20)^2$$

$$= ₹ 34914$$

By taking ₹ 34,914 as principal, the S.I. for the next 1/3 years will be calculated

$$\text{S.I.} = (34914 \times 1/3 \times 15)/100 = ₹ 1745.70$$

$$\text{Interest for the first two years} = ₹ (34914 - 26400) = ₹ 8,514$$

$$\text{And interest for the next } 1/3 \text{ year} = ₹ 1,745.70$$

$$\text{Total C.I.} = ₹ (8514 + ₹ 1745.70) = ₹ 10,259.70$$

$$\text{Amount} = P + \text{C.I.} = ₹ 26400 + ₹ 10259.70 = ₹ 36,659.70$$

**3. Fabina borrows ₹ 12,500 at 12% per annum for 3 years at simple interest, and Radha borrows the same amount for the same time period at 10% per annum, compounded annually. Who pays more interest, and by how much?**

**Solution:**

$$\text{Interest paid by Fabina} = (P \times R \times T)/100$$

$$= (12500 \times 12 \times 3)/100$$

$$= 4500$$

$$\text{Amount paid by Radha at the end of 3 years} = A = P(1 + R/100)^n$$

$$A = 12500(1 + 10/100)^3$$

$$= 12500(110/100)^3$$

$$= ₹ 16637.50$$

$$\text{C.I.} = A - P = ₹ 16637.50 - ₹ 12500 = ₹ 4,137.50$$

The interest paid by Fabina is ₹ 4,500 and by Radha is ₹ 4,137.50

Thus, Fabina pays more interest

$$₹ 4500 - ₹ 4137.50 = ₹ 362.50$$

Hence, Fabina will have to pay ₹ 362.50 more.

**4. I borrowed ₹ 12000 from Jamshed at 6% per annum simple interest for 2 years. Had I borrowed this sum at 6% per annum compound interest, what extra amount would I have to pay?**

**Solution:**

$$P = ₹ 12000$$

$$R = 6\% \text{ per annum}$$

$$T = 2 \text{ years}$$

$$\text{S.I.} = (P \times R \times T)/100$$

$$= (12000 \times 6 \times 2)/100$$

$$= ₹ 1440$$

To find the compound interest, the amount (A) has to be calculated

$$\text{Amount, } A = P(1 + R/100)^n$$

$$= 12000(1 + 6/100)^2$$

$$= 12000(106/100)^2$$

$$= 12000(53/50)^2$$

$$= ₹ 13483.20$$

$$\therefore \text{C.I.} = A - P$$

$$= ₹ 13483.20 - ₹ 12000$$

$$= ₹ 1,483.20$$

$$\text{C.I.} - \text{S.I.} = ₹ 1,483.20 - ₹ 1,440$$

$$= ₹ 43.20$$

Therefore, the extra amount to be paid is ₹ 43.20.

**5. Vasudevan invested ₹ 60000 at an interest rate of 12% per annum compounded half yearly. What amount would he get**

**(i) after 6 months?**

**(ii) after 1 year?**

**Solution:**

$$(i) P = ₹ 60,000$$

$$\text{Rate} = 12\% \text{ per annum} = 6\% \text{ per half-year}$$

$$n = 6 \text{ months} = 1 \text{ half-year}$$

$$\text{Amount, } A = P(1 + R/100)^n$$

$$= 60000(1 + 6/100)^1$$

$$= 60000(106/100)$$

$$= 60000(53/50)$$

$$= ₹ 63600$$

(ii) There are 2 half-years in 1 year

$$\text{So, } n = 2$$

$$\text{Amount, } A = P(1 + R/100)^n$$

$$= 60000(1 + 6/100)^2$$

$$= 60000(106/100)^2$$

$$= 60000(53/50)^2$$

$$= ₹ 67416$$

**6. Arif took a loan of ₹ 80,000 from a bank. If the rate of interest is 10% per annum, find the difference in amounts he would be paying after 1½ years if the interest is**

**(i) Compounded annually**

**(ii) Compounded half yearly**

**Solution:**

$$(i) P = ₹ 80,000$$

$$R = 10\% \text{ per annum}$$

$$n = 1\frac{1}{2} \text{ years}$$

The amount for 1 year and 6 months can be calculated by first calculating the amount for 1 year using the compound interest formula, then calculating the simple interest for 6 months on the amount obtained at the end of 1 year.

First, the amount for 1 year has to be calculated

$$\text{Amount, } A = P(1 + R/100)^n$$

$$= 80000(1 + 10/100)^1$$

$$= 80000 \times 11/100$$

$$= ₹ 88000$$

By taking ₹ 88,000 as principal, the S.I. for the next ½ year will be calculated as

$$\text{S.I.} = (P \times R \times T)/100$$

$$= (88000 \times 10 \times \frac{1}{2})/100$$

$$= ₹ 4400$$

$$\text{Interest for the first year} = ₹ 88000 - ₹ 80000 = ₹ 8000$$

$$\text{And interest for the next } \frac{1}{2} \text{ year} = ₹ 4,400$$

$$\text{Total C.I.} = ₹ 8,000 + ₹ 4,400 = ₹ 12,400$$

$$A = P + \text{C.I.} = ₹ (80000 + 12400)$$

$$= ₹ 92,400$$

(ii) The interest is compounded half yearly

Rate = 10% per annum = 5% per half-year

There will be three half-years in  $1\frac{1}{2}$  years

$$\text{Amount, } A = P(1 + R/100)^n$$

$$= 80000(1 + 5/100)^3$$

$$= 80000(105/100)^3$$

$$= ₹ 92610$$

Thus, the difference between the amounts = ₹ 92,610 – ₹ 92,400 = ₹ 210

**7. Maria invested ₹ 8,000 in a business. She would be paid interest at 5% per annum compounded annually. Find**

**(i) The amount credited against her name at the end of the second year**

**(ii) The interest for the 3<sup>rd</sup> year**

**Solution:**

$$(i) P = ₹ 8,000$$

$$R = 5\% \text{ per annum}$$

$$n = 2 \text{ years}$$

$$\text{Amount, } A = P(1 + R/100)^n$$

$$= 8000(1 + 5/100)^2$$

$$= 8000(105/100)^2$$

$$= ₹ 8820$$

(ii) The interest for the next year, i.e. the third year, has to be calculated. By taking ₹ 8,820 as principal, the S.I. for the next year will be calculated.

$$\text{S.I.} = (P \times R \times T)/100$$

$$= (8820 \times 5 \times 1)/100$$

$$= ₹ 441$$

**8. Find the amount and the compound interest on ₹ 10,000 for 1½ years at 10% per annum, compounded half yearly. Would this interest be more than the interest he would get if it was compounded annually?**

**Solution:**

$$P = ₹ 10,000$$

$$\text{Rate} = 10\% \text{ per annum} = 5\% \text{ per half-year}$$

$$n = 1\frac{1}{2} \text{ years}$$

There will 3 half-years in 1½ years

$$\text{Amount, } A = P(1 + R/100)^n$$

$$= 10000(1 + 5/100)^3$$

$$= 10000(105/100)^3$$

$$= ₹ 11576.25$$

$$\text{C.I.} = A - P$$

$$= ₹ 11576.25 - ₹ 10000$$

$$= ₹ 1,576.25$$

The amount for 1 year and 6 months can be calculated by first calculating the amount for 1 year using the compound interest formula, then calculating the simple interest for 6 months on the amount obtained at the end of 1 year.

$$\text{Amount, } A = P(1 + R/100)^n$$

$$= 10000(1 + 10/100)^1$$

$$= 10000(110/100)$$

$$= ₹ 11000$$

By taking ₹ 11,000 as the principal, the S.I. for the next ½ year will be calculated as

$$\text{S.I.} = (P \times R \times T)/100$$

$$= (11000 \times 10 \times \frac{1}{2})/100$$

$$= ₹ 550$$

So, the interest for the first year = ₹ 11000 – ₹ 10000 = ₹ 1,000

Hence, Total compound interest = ₹ 1000 + ₹ 550 = ₹ 1,550

So the difference between two interests = 1576.25 – 1550 = 26.25

Therefore, the interest would be 26.25 more when compounded half yearly than the interest when compounded annually.

**9. Find the amount which Ram will get on ₹ 4,096, if he gave it for 18 months at 12½ per annum, interest being compounded half-yearly.**

**Solution:**

$$P = ₹ 4,096$$

$$R = 12\frac{1}{2} \text{ per annum} = \frac{25}{2} \text{ per annum} = \frac{25}{4} \text{ per half-year}$$

$$n = 18 \text{ months}$$

There will be 3 half-years in 18 months

$$\text{Therefore, amount } A = P(1 + R/100)^n$$

$$= 4096(1 + \frac{25}{4 \times 100})^3$$

$$= 4096 \times (1 + \frac{1}{16})^3$$

$$= 4096 \times (\frac{17}{16})^3$$

$$= ₹ 4913$$

Therefore, the required amount is ₹ 4,913.

**10. The population of a place increased to 54000 in 2003 at a rate of 5% per annum**

**(i) find the population in 2001**

**(ii) what would be its population in 2005?**

**Solution:**

(i) It's given that population in the year 2003 = 54,000

$$54,000 = (\text{Population in 2001}) (1 + 5/100)^2$$

$$54,000 = (\text{Population in 2001}) (105/100)^2$$

$$\text{Population in 2001} = 54000 \times (100/105)^2$$

$$= 48979.59$$

Therefore, the population in the year 2001 was approximately 48,980

(ii) Population in 2005 = 54000(1 + 5/100)<sup>2</sup>

$$= 54000(105/100)^2$$

$$= 54000(21/20)^2$$

$$= 59535$$

Therefore, the population in the year 2005 would be 59,535.

**11. In a laboratory, the count of bacteria in a certain experiment was increasing at the rate of 2.5% per hour. Find the bacteria at the end of 2 hours if the count was initially 5,06,000.**

**Solution:**

The initial count of bacteria is given as 5,06,000

$$\text{Bacteria at the end of 2 hours} = 506000(1 + 2.5/100)^2$$

$$= 506000(1 + 1/40)^2$$

$$= 506000(41/40)^2$$

$$= 531616.25$$

Therefore, the count of bacteria at the end of 2 hours will be 5,31,616 (approx.).

**12. A scooter was bought at ₹ 42,000. Its value depreciated at the rate of 8% per annum. Find its value after one year.**

**Solution:**

Principal = Cost price of the scooter = ₹ 42,000

Depreciation = 8% of ₹ 42,000 per year

$$= (P \times R \times T)/100$$

$$= (42000 \times 8 \times 1)/100$$

$$= ₹ 3360$$

Thus, the value after 1 year = ₹ 42000 – ₹ 3360 = ₹ 38,640.

## NCERT Solutions for Class 8 Maths Chapter 8 – Comparing Quantities Summary

Chapter 8 of NCERT Class 8 Maths, "Comparing Quantities," deals with the concepts of ratios and percentages, along with other important topics. The major concepts covered in this chapter include:

**8.1 Recalling Ratios and Percentages:** This section reviews the basic concepts of ratios and percentages.

**8.2 Finding the Increase or Decrease Percent:** Learn how to calculate the percentage increase or decrease in quantities.

**8.3 Finding Discounts:** This part covers how to calculate discounts on prices.

- **8.3.1 Estimation in Percentages:** Learn methods to estimate values using percentages.

**8.4 Prices Related to Buying and Selling (Profit and Loss):** Understand how to calculate profit and loss in buying and selling transactions.

- **8.4.1 Finding Cost Price/Selling Price, Profit %, and Loss %:** This section explains how to determine the cost price, selling price, and the percentages of profit and loss.

**8.5 Sales Tax/Value Added Tax:** Learn about sales tax and value-added tax and how they are calculated.

**8.6 Compound Interest:** Introduction to the concept of compound interest.

**8.7 Deducing a Formula for Compound Interest:** This part explains how to derive the formula for calculating compound interest.

**8.8 Rate Compounded Annually or Half-Yearly (Semi-annually):** Learn about interest rates that are compounded annually or semi-annually.

**8.9 Applications of Compound Interest Formula:** This section covers various applications of the compound interest formula in real-life scenarios.

## Benefits of NCERT Solutions for Class 8 Maths Chapter 8

- **Clear Understanding:** These solutions provide clear and detailed explanations of concepts such as ratios, percentages, discounts, profit and loss, sales tax, and compound interest, making it easier for students to grasp these important topics.
- **Step-by-Step Solutions:** Each problem is solved step-by-step, which helps students understand the methods and procedures involved in solving various types of mathematical problems related to comparing quantities.
- **Exam Preparation:** These solutions are aligned with the NCERT curriculum and help students prepare thoroughly for exams by covering all the key topics and providing practice problems.
- **Concept Clarity:** The solutions help in reinforcing concepts learned in class, ensuring that students have a solid understanding of the material.
- **Confidence Building:** By working through these solutions and understanding how to solve problems on their own, students can build confidence in their mathematical abilities.
- **Accessible Learning:** The solutions are available in a PDF format, making it easy for students to access and study them anytime, anywhere.