MATHS

BOOKS - ICSE

COMPOUND INTEREST (USING FORMULA)

Questions

1. Calculate the amount on Rs 7,500 in 2 years and at 6% compounded annually.

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2. Calculate the compound intersect on Rs 18,000 in 2 years at 15% per annum.

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3. Calcualte the amount and the compound intersect on Rs 12,000 in 3 years when the rates of intersect for successive years are 8%, 10% and 15% respectively.

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4. What sum of money will amount to Rs 3,630/- in 2 years at 10% per annum compound intrest

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5. On what sum of money will compound intersect for 2 year at 5 percent per year amount to Rs 64 ?

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6. At what rate percent per annum C.I will Rs 2,000 amount to Rs 2,315.25 in 3 years ?

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7. A person invests Rs 10,000 for two years at a certain rate of interest compounded annually. At the end of one years this sum amounts to Rs 11,200. Calcaulte.

the rate of interest per annum

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8. A person invests Rs 10,000 for two years at a rate of 12% interset compounded annually. At the end of one years this sum amounts to Rs 11,200. Calcaulte the amount at the end of the second year.

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9. In how many years will Rs 2,000 amount to Rs. 2,662 at 10 percent p.a C.I ?

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10. Rs 16,820 is divided between Govind and Geeta, both aged 27 and 25 years respectively. Their money is invested at 5% per annum compound interst in such a way that both receive equal to money at the age of 40 years. Find the share of each out of Rs 16,820.

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11. On what sum of money will the difference between simple intersect and compound intersect for 2 years at 5% per annum be equal to Rs 25 ?

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12. A certain sum of money at compound interset amounts to Rs 6,600 in 1 year and to Rs 7,986 in 3 years. Find the sum and the rate percent.

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13. The difference between the C.I and the S.I on Rs 8,400 for two years is Rs 21 at the same rate of intersect per year. Find the rate of interset.

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14. Calculate the compound interest on Rs 4,000 in $1\frac{1}{2}$ years at 10 % per annum compounded half-yearly.

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15. Find the amount and the compound interest on $Rs10,000$ for $(1)\frac{1}{2}$ years at $10\,\%$ per annum, compounded half yearly.

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16. John borrowed Rs 20,000 for 4 years under the following conditions :

10% simple interest for the first $2\frac{1}{2}$ years.

10% C.I. for the remaining one and a half years on the amount due after $2\frac{1}{2}$ years, the interest being compounded half-yearly.

Find the total amount to be paid at the end of fourth year.

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17. A sum of money is lent out at compound intersect for two years at 20% per annum. Compound intersect being reckoned yearly. If the same sum of money was lent out at

compound interest at the same rate percent per annum, compound intersect being reckoned healf-yealry, it would have fetched Rs 482 more by way of interest in two years. Calcualte the sum of money lent out.

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18. A sum of Rs 6,400 earns a compound interest of Rs 1,008.80 in 18 months when the interest is reckoned half-yearly. Find the rate of interest.

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19. The simple interest on a sum of money for 2 years at 4% per annum is Rs 340. Find :

the sum of money and

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20. The simple interest on a sum of money for 2 years at 4% per annum is Rs 340. Find :

the compound intersect on this sum for one year payble half-hearly at the same rate.

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21. The total number of industries in a particular portion of the country is approximately 1,600. if the government has decided to increases the number of industries in the area by 20% year. Find the approximate number of industries after 2 years.

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22. The value of machine depreciates every year at the rate of 20% of its value of the beginnning of the year (i.e the raete of depreciation is 20%). The machine eas purchased for Rs. 2,50,000 when new, and the srap value realised when sold was Rs 1,28,000. Find the numer of years that the machine was used.

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23. The population of a town in China increases by 20% every year If its present population is 2,16,000 , find its population after 2 years

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24. The population of a town in China inreases by 20% every year If its present popularion is 2,16,000 , find:

its population 2 years ago.

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25. A sum of money lent out at C.I at a certain r% (rate of growth) doubles itself in 5 years. Find in how many years will the money become eight times of itself at the same rate of growth.

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26. A man borrowed a sum of money and agrees to pay it off by paying Rs 43,200 at the

end of the first year and Rs 34,992 at the end of the second year. If the rate of compound interest is 8% per annum, find the sum borrowed.

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27. Calculate the amount on Rs 7,500 in 2 years and at 6% compounded annually.

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28. Calculate the compound intersect on Rs 18,000 in 2 years at 15% per annum.

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Exercise 3 A

1. Find the amount and the compound interest on Rs 12,000 in 3 years at 5%, interest being compounded annually.

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2. Calculate the amount, if Rs 15,000 is lent at compound interest for 2 years and the rates for the successive years are 8% p.a. and 10% p.a. respectively.

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3. Calculate the compound interest accrued on Rs 6,000 in 3 years, compounded yearly, if the rates for the successive years are 5%, 8% and 10% respectively.

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4. What sum of money will amount to Rs 5,445 in 2 years at 10% per annum compound interest?

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5. On what sum of money will the compound interest for 2 years at 5 per cent per annum amount to Rs 768*75 ?

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6. Find the sum on which the compound interest for 3 years at 10% per annum amounts to Rs 1,655

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7. What principal will amount to Rs 9,856 in two years, if the rates of interest for successive years are 10% and 12% respectively ?

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8. On a certain sum, the compound interest in 2 years amounts to Rs 4,240. If the rates of interest for successive years are 10% and 15% respectively, find the sum.

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9. At what rate per cent per annum will Rs 6,000 amount to Rs 6,615 in 2 years when

interest is compounded annually ?

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10. At what rate per cent compound interest, does a sum of money become 1.44 times of itself in 2 years ?

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11. At what rate per cent will a sum of Rs 4,000 yield 1,324 as compound interest in 3 years?

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12. A person invests Rs 5,000 for three years at a certain rate of interest compounded annually. At the end of two years this sum amounts to Rs 6,272. Calculate the rate of interest per annum.

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13. A person invests 5,000 for three years at a certain rate of interest compounded annually. At the end of two years this sum amounts to Rs 6,272. Calculate :

the amount at the end of the third year.

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14. In how many years will Rs 7,000 amount to Rs 9,317 at 10 per cent per annum compound interest?

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15. Find the time, in years, in which Rs 4,000 will produce Rs 630.50 as compound interest at 5 percent p.a. interest being compounded annually.

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16. Divide 28,730 between A and B so that when their shares are lent out at 10 per cent compound interest compounded per year, the

amount that A receives in 3 years is the same as what B receives in 5 years.

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17. A sum of Rs 44,200 is divided between John and Smith, 12 years and 14 years old respectively, in such a way that if their portions be invested at 10 percent per annum compound interest, they will receive equal amounts on reaching 16 years of age.

What will each receive, when 16 years old ?

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44. Find the difference between compound interest and simple interest on Rs 8,000 in 2 years and at 5% per annum.

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Exercise 3 B

1. The difference between simple interest and compound interest on a certain sum is Rs

54.40 for 2 years at 8 percent per annum. Find the sum.

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2. A sum of money, invested at compound interest, amounts to Rs 19,360 in 2 years and to Rs 23,425.60 in 4 years. Find the rate percent and the original sum of money.

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3. A sum of money lent out at C.I. at a certain rate per annum becomes three times of itself in 8 years. Find in how many years will the money become twenty-seven times of itself at the same rate of interest p.a.

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4. On what sum of money will compound interest (payable annually) for 2 years be the same as simple interest on Rs 9,430 for 10

years, both at the rate of 5 percent per annum

?

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5. Kamal and Anand each lent the same sum of money for 2 years at 5% at simple interest and compound interest respectively. Anand received Rs 15 more than Kamal. Find the amount of money lent by each .

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6. Simple interest on a sum of money for 2 years at 4% is Rs 450. Find compound interest on the same sum and at the same rate for 2 years.

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7. Simple interest on a certain sum of money for 4 years at 4% per annum exceeds the compound interest on the same sum for 3 years at 5 percent per annum by Rs 228. Find the sum.

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8. Compound interest on a certain sum of money at 5% per annum for two years is Rs 246. Calculate simple interest on the same sum for 3 years at 6% per annum.

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9. A certain sum of money amounts to Rs 23,400 in 3 years at 10% per annum simple

interest. Find the amount of the same sum in 2 years and at 10% p.a. compound interest.

10. Mohit borrowed a certain sum at 5% per annum compound interest and cleared this loan by paying Rs 12,600 at the end of the first year and Rs 17,640 at the end of the second year. Find the sum borrowed.

11. The difference between simple interest and compound interest on a certain sum is Rs 54.40 for 2 years at 8 percent per annum. Find the sum.

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Exercise 3 C

1. If the interest is compounded half-yearly, calculate the amount when principal is Rs 7,400, the rate of interest is 5% per annum and the duration is one year.

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2. Find the difference between the compound interest compounded yearly and half yearly on Rs 10,000 for 18 months at 10% per annum.

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3. A man borrowed 16,000 for 3 years under the following terms:

20% simple interest for the first 2 years.

20% C.I. for the remaining one year on the amount due after 2 years, the interest being

compounded half-yearly.

Find the total amount to be paid at the end of three years.

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4. What sum of money will amount to Rs 27,783 in one and a half years at 10% per annum compounded half yearly ?

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5. Ashok invests a certain sum of money at 20% per annum, compounded yearly. Geeta invests an equal amount of money at the same rate of interest per annum compounded half-yearly. If Geeta gets Rs 33 more than Ashok in 18 months, calculate the money invested.

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6. At what rate of interrest per annum will a sum of Rs 62,500 earn a compound interest of

Rs 5,100 in one year ? The interest is to be compounded half-yearly.

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7. In what time will Rs 1,500 yield Rs 496,50 as compound interest at 20% per year compounded half-yearly ?

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8. Calcualte the C.I. on Rs 3,500 at 6% per annum for 3 years, the interest being compounded half-yearly.

Do not use mathematical tables. Use the necessary information from the following:

$(1 \cdot 06)^3 = 1 \cdot 19106, (1 \cdot 03)^3 = 1 \cdot 092727$

$(1 \cdot 06)^6 = 1 \cdot 418519, (1 \cdot 03)^6 = 1 \cdot 194052$

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Exercise 3 D

1. The cost of a machine is supposed to depreciate each year by 12% of its value at the beginning of the year. If the machine is valued

at Rs 44,000 at the beginning of 2008, find its value at the end of 2009

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2. The cost of a machine is supposed to depreciate each year by 12% of its value at the beginning of the year. If the machine is valued at Rs 44,000 at the beginning of 2008, find its value at the beginning of 2007.

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3. The value of an article decreased for two years at the rate of 10% per year and then in the third year it increased by 10%. Find the original value of the article, if its value at the end of 3 years is Rs 40,095

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4. According to a census taken towards the end of the year 2009, the population of a rural town was found to be 64,000. The census authority also found that the population of

this particular town had a growth of 5% per annum. In how many years after 2009 did the population of this town reach 74,088 ?

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5. The population of a town decreased by 12% during 1998 and then increased by 8% during 1999. Find the population of the town, at the beginning of 1998, if at the end of 1999 its population was 2,85,120.

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6. A sum of money, invested at compound interest, amounts to Rs 16,500 in 1 year and to Rs 19,965 in 3 years. Find the rate per cent and the original sum of money invested.

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7. The difference between C.I. and S.I. on Rs 7,500 for two years is Rs 12 at the same rate of interest per annum. Find the rate of interest.

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8. A sum of money lent out at C.I. at a certain rate per annum becomes three times of itself in 8 years. Find in how many years will the money become twenty-seven times of itself at the same rate of interest p.a.

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9. Mr. Sharma borrowed a certain sum of money at 10% per annum compounded

annually. If by paying Rs 19,360 at the end of the second year and Rs 31,944 at the end of the third year he clears the debt, find the sum borrowed by him.

10. The difference between compound interest for a year payable half-yearly and simple interest on a certain sum of money lent out at 10% for a year is Rs 15. Find the sum of money lent out.

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11. The ages of Pramod and Rohit are 16 years and 18 years respectively. In what ratio must they invest money at 5% p.a. compounded yearly so that both get the same sum on attaining the age of 25 years ?

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yearly so that both get the same sum on attaining the age of 25 years ?

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Exercise 3 E

1. Simple interest on a sum of money for 2 years at 4% growth rate is Rs 450. Find compound interest on the same sum and at the same rate for 1 year, if the interest is reckoned half yearly.

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2. Find the compound interest to the nearest rupee on Rs 10,800 for $2\frac{1}{2}$ years at 10% per annum.

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3. The value of a machine, purchased two years ago, depreciates at the annual rate of 10%. If its present value is Rs 97,200, find it value after 2 years

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4. The value of a machine, purchased two years ago, depreciates at the annual rate of 10%. If its present value is Rs 97,200, find its value when it was purchased.

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5. Anuj and Rajesh each lent the same sum of money for 2 years at 8% simple interest and

compound interest respectively. Rajesh received Rs 64 more than Anuj. Find the money lent by each and interest received.

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6. Calculate the sum of money on which the compound interest (payable annually) for 2 years be four times the simple interest on Rs 4,715 for 5 years, both at the rate of 5 per cent per annum.

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7. A sum of money was invested for 3 years, interest being compounded annually. The rates for successive years were 10%, 15% and 18% respectively. If the compound interest for the second year amounted to 4,950, find the sum invested.

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8. A sum of money is invested at 10% per annum compounded half-yearly. If the

difference of amounts at the end of 6 months and 12 months is Rs 189, find the sum of money invested,

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9. Rohit borrows Rs 86,000 from Arun for two years at 5% per annum simple interest. He immediately lends out this money to Akshay at 5% compound interest compounded annually for the same period. Calculate Rohit's profit in the transaction at the end of two years.

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10. The simple interest on a certain sum of money for 3 years at 5% per annum is Rs 1,200. Find the amount due and the compound interest on this sum of money at the same rate and after 2 years, interest is reckoned annually.

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11. Nikita invests Rs 6,000 for two years at a certain rate of interest compounded annually. At the end of first year it amounts to Rs 6,720. Calculate the rate percent (i.e. rate of growth)

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12. Nikita invests Rs 6,000 for two years at a certain rate of interest compounded annually. At the end of first year it amounts to Rs 6,720.

Calculate the amount at the end of the second year.

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13. Simple interest on a sum of money for 2 years at 4% growth rate is Rs 450. Find compound interest on the same sum and at the same rate for 1 year, if the interest is reckoned half yearly.

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14. Find the compound interest to the nearest rupee on Rs 10,800 for $2\frac{1}{2}$ years at 10% per annum.

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15. The value of a machine, purchased two years ago, depreciates at the annual rate of 10%. If its present value is Rs 97,200, find it value after 2 years

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16. The value of a machine, purchased two years ago, depreciates at the annual rate of 10%. If its present value is Rs 97,200, find :

its value when it was purchased.

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17. Anuj and Rajesh each lent the same sum of money for 2 years at 8% simple interest and compound interest respectively. Rajesh

received Rs 64 more than Anuj. Find the money lent by each and interest received.

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18. Calculate the sum of money on which the compound interest (payable annually) for 2 years be four times the simple interest on Rs 4,715 for 5 years, both at the rate of 5 per cent per annum.

Watch Video Solution

19. A sum of money was invested for 3 years, interest being compounded annually. The rates for successive years were 10%, 15% and 18% respectively. If the compound interest for the second year amounted to 4,950, find the sum invested.

Watch Video Solution

20. A sum of money is invested at 10% per annum compounded half-yearly. If the difference of amounts at the end of 6 months

and 12 months is Rs 189, find the sum of money invested,

Watch Video Solution

21. Rohit borrows Rs 86,000 from Arun for two years at 5% per annum simple interest. He immediately lends out this money to Akshay at 5% compound interest compounded annually for the same period. Calculate Rohit's profit in the transaction at the end of two years.

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22. The simple interest on a certain sum of money for 3 years at 5% per annum is Rs 1,200. Find the amount due and the compound interest on this sum of money at the same rate and after 2 years, interest is reckoned annually.

Watch Video Solution

23. Nikita invests Rs 6,000 for two years at a certain rate of interest compounded annually.

At the end of first year it amounts to Rs 6.720.

Calculate :

the rate percent (i.e. rate of growth)

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24. Nikita invests Rs 6,000 for two years at a certain rate of interest compounded annually. At the end of first year it amounts to Rs 6.720.

Calculate :

the amount at the end of the second year.

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