QUANTITATIVE APTITUDE

## Compound Interest

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## Quantitative Aptitude - Compound Interest

1. The compound interest on a certain sum for 2 years is Rs. 786 and S.I. is Rs. 750 . If the sum is invested such that the S.I. is Rs. 1296 and the number of years is equal to the rate per cent per annum, find the rate of interest?
A. $4 \%$
B. $5 \%$
C. $6 \%$
D. $8 \%$
E. $2 \%$

Answer: C

## Explanation:

Cl for 2 years $=$ Rs. 786
SI for 2 years = Rs. 750
$\frac{36}{360 * 100}=10 \%$
$P$ for first year $=3600$
$\frac{\mathrm{P} * \mathrm{x} * \mathrm{X}}{100}=1296$
$x=6 \%$
2. Hari took an educational loan from a nationalized bank for his 2 years course of MBA. He took the loan of Rs. 5 lakh such that he would be charged at 7\% p.a. at Cl during his course and at $9 \% \mathrm{Cl}$ after the completion of the course. He returned half of the amount which he had to be paid on the completion of his studies and remaining after $\mathbf{2}$ years. What is the total amount returned by Hari?
A. Rs. 626255
B. Rs. 626277
C. Rs. 616266
D. Rs. 626288
E. None of these

Answer: D

## Explanation:

$5,00,000 *(1.07)^{2}=572450$
Returned amount $=286225$
After two years $=286225^{*}(1.09)^{2}=340063$

Total amount $=286225+340063=626288$
3. Rs.20,000 was invested by Mahesh in a FD @ $10 \%$ pa at CI. However every year he has to pay 20\% tax on the CI. How much money does Mahesh have after 3 years?
A. 25694
B. 25594
C. 25394
D. 25194
E. None of these

## Answer: D

## Explanation:

$\left(20000 *(1.08)^{3}\right)=25194$
4. Leela takes a loan of Rs. 8400 at $10 \%$ p.a. compounded annually which is to be repaid in two equal annual installments. One at the end of one year and the other at the end of the second year. The value of each installment is?
A. 4200
B. 4140
C. 4840
D. 5640
E. None of these

Answer: C

## Explanation:

$8400=x *\left(\frac{210}{121}\right)=>4840$
5. A sum of money lent at compound interest for 2 years at $\mathbf{2 0 \%}$ per annum would fetch Rs. 723 more, if the interest was payable half yearly than if it was payable annually. The sum is $\qquad$
A. Rs. 20000
B. Rs. 15000
C. Rs. 30000
D. Rs. 45000
E. None of these

## Answer: C

## Explanation:

Sum - Rs. x
C.I. compounded half yearly $=\left(\frac{4641}{10000}\right) x$
C.l. compounded annually $=\left(\frac{11}{25}\right) x$
$\left(\frac{4641}{10000}\right) x-\left(\frac{11}{25}\right) x$
$=723$
$x=30000$
6. A sum of Rs. 7140 is to be divided between Anita and Bala who are respectively 18 and 19 yr old, in such a way that if their shares will be invested at 4\% per annum at compound interest, they will receive equal amounts on attaining the age of 21 year. The present share of Anita is
A. 4225
B. 4352
C. 3500
D. 4000
E. None of these

## Answer: C

## Explanation:

Amount got by Anita after $3 \mathrm{yr}=$ Amount got by Bala after 2 yr
$X *\left(\frac{26}{25}\right)^{3}=(7140-x)^{*}\left(\frac{26}{25}\right)$
$26 / 25=7140-x / x$
$x=3500$
7. Suresh borrows Rs. 6375 to be paid back with compound interest at the rate of $4 \%$ pa by the end of 2 year in two equal yearly installments. How much will each installment will be?
A. 3840
B. 3380
C. 4800
D. Data inadequate
E. None of these

## Answer: B

## Explanation:

$\frac{25 x}{26}+\frac{625}{676 x}=6375 x=\frac{(6375 * 676)}{1275}=3380$
8. A sum of Rs. 8400 was taken as loan. This is to be paid in two equal annual installments. If the rate of interest be $\mathbf{2 0 \%}$ compounded annually, then the value of each installment is
A. 5400
B. 5700
C. 5100
D. 5200
E. None of these

Answer: A

## Explanation:

Let value of each installment be $X$.
$X /\left(\frac{1+20}{100}\right)+X /\left(\frac{20}{100}\right)^{2}=8400$
$\Rightarrow X\left(\frac{5}{6}+\frac{25}{36}\right)=8400$
$\Rightarrow X\left(\frac{56}{36}\right)=8400$
$X=5400$
9. During the first year the population of a village is increased by $5 \%$ and the second year it is diminished by $5 \%$. At the end of the second year its population was 31500 . What was the population at the beginning of the first year?
A. 35500
B. 31578
C. 33500
D. 33000
E. None of these

Answer: B
Explanation:
$x * \frac{105}{100} \times \frac{95}{100}=31500$
$\mathrm{x}=31500 * \frac{100}{105} * \frac{100}{95}$
$D=31578$
10. If Rs. 7200 amounts to Rs. 10368 at compound interest in a certain time , then Rs. $\mathbf{7 2 0 0}$ amounts to what in half of the time?
A. 8640
B. 8600
C. 8800
D. 8520
E. None of these

Answer: A

## Explanation:

Let rate $=\mathrm{R} \%$ and time $=\mathrm{n}$ year
Then, $10368=7200\left(\frac{1+\mathrm{R}}{100}\right) \mathrm{n}$
$\Rightarrow\left(\frac{1+\mathrm{R}}{100}\right) \mathrm{n}=\frac{10368}{7200} 1.44$
$\therefore\left(\frac{1+\mathrm{R}}{100}\right) \frac{n}{2}=\sqrt{ } 1.44=1.2$
$\therefore$ required amount for $\frac{n}{2} \mathrm{yr}$
$=7200\left(\frac{1+\mathrm{R}}{100}\right) \frac{n}{2}$
$=7200 \times 1.2=$ Rs. $8640 \frac{n}{2}$
11. A part of 70000 is lent out at $10 \%$ annum. The rest of the amount is lent out at $5 \%$ per annum after one year. The ratio of interest after 3 years from the time when first amount was lent out is 1:2. Find the second part that was lent out at $5 \%$.
A. 40000
B. 50000
C. 60000
D. 48000
E. 55000

Answer: C

## Explanation:

$\frac{10 * 3 * \mathrm{x}}{5 * 2 * \mathrm{y}}=\frac{1}{2}$
$\frac{x}{y}=\frac{1}{6}$
$\frac{6}{7 * 70000}=60000$
12. There is $50 \%$ increase in an amount in 5 years at simple interest. What will be the compound interest of Rs. 12,000 after 3 years at the same rate?
A. Rs. 2255
B. Rs. 2792
C. Rs. 3580
D. Rs. 3972
E. None of these

## Answer: D

## Explanation:

In S.I,

Let $\mathrm{P}=100, \mathrm{I}=50, \mathrm{~T}=5 \mathrm{yrs}$
$R=\frac{50 * 100}{100 * 5}=10 \%$
In C.I,
$P=12000, T=3$ yrs, $R=10 \%$
C.I $=\left[12000^{*}\left(\frac{1+10}{100}\right)^{\wedge} 3-1\right] C . I=3972$.
13. Karthik lends a certain amount to Vignesh on simple interest for two years at $\mathbf{2 0 \%}$. Vignesh gives this entire amount to Kamal on compound interest for two years at the same rate annually. Find the percentage earning of Vignesh at the end of two years on the entire amount.
A. $3 \%$
B. $3(1 / 7) \%$
C. $4 \%$
D. $5(6 / 7) \%$
E. None of these

Answer: C

Explanation:
$S I=20 * 2=40 \%$
$\mathrm{Cl}=20+20+\left(\frac{400}{100}\right)=44 \%$
Diff $=44-40=4 \%$
14. A man borrows 3000 rupees at $10 \%$ compound interest. At the end every year he pays rupees 1000 back. How much amount should he pay at the end of the fourth Year to clear all his debt?
A. Rs. 680.5
B. Rs. 651.3
C. Rs. 751.3
D. Rs. 790.3
E. None of these

Answer: C

## Explanation:

After one year amount $=\frac{3000 * 110}{100}=3300$

He pays 1000 back, so remaining $=3300-1000=2300$
After two year amount $=\frac{2300 * 110}{100}=2530$
He pays 1000 back, so remaining $=2530-1000=1530$
After three year amount $=\frac{1530 * 110}{100}=1683$
He pays 1000 back, so remaining $=1683-1000=683$
After fourth year $=\frac{683 * 110}{100}=751.3$
15. Rahul saves an amount of 800 every year and then lent that amount at an interest of $\mathbf{1 0}$ percent compounded annually. Find the amount after 3 years.
A. Rs. 1822.8
B. Rs. 2252
C. Rs. 2550.50
D. Rs. 2912.8
E. None of these

Answer: D

## Explanation:

$800 *\left(\frac{11}{10}\right)^{3}=1064.8$
$800 *\left(\frac{11}{10}\right)^{2}=968$
$800 *\left(\frac{11}{10}\right)=880$

Total amount =2912.8
16. Find the compound interest at the rate of $8 \%$ for 3 years on that principal which in 3 years at therate of $\mathbf{1 0 \%}$ per annum gives 300 as simple interest.
A. 180.515
B. 220.25
C. 259.712
D. 289.624
E. 312.51

## Answer: C

## Explanation:

SI $=300$

Per yr = 100

Rate $=10 \%$
$C . I=1000 *\left(\frac{108}{100}\right)^{3}-1000$
C. $I=259.712$
17. The difference between the total simple interest and the total compound interest compounded annually at the same rate of interest on a sum of money at the end of two years is Rs. 450. What is definitely the rate of interest per cent per annum?
A. 8400
B. 4800
C. 7800
D. Data inadequate
E. None of these

Answer: D
Explanation:
Difference $=\frac{\operatorname{Pr} 2}{(100) 2}$
$=\frac{(450 \times 100 \times 100)}{(\mathrm{P} \times \mathrm{r} 2)}$
$P$ is not given
18. The CI on Rs. 6000 for 3 years at $\mathbf{8 \%}$ for first year, $7 \%$ for second year, $6 \%$ for the third year will be
A. Rs. 1430
B. Rs. 1530
C. Rs. 1250
D. Rs. 1350
E. None of these

Answer: D

## Explanation:

$A=6000 * 108 / 100 * 107 / 100 * 106 / 100$
$=6000 * 1.08 * 1.07 * 1.06$
$=7349.616=7350$
$\mathrm{Cl}=7350-6000=1350$
19. Venkat and Vidhya have to clear their respective loans by paying 2 equal annual instalments of Rs. 30000 each. Venkat pays at $10 \%$ pa of SI and Vidhyapays at $10 \% \mathrm{Cl}$ pa. What is the difference in their payments?
A. 200
B. 300
C. 400
D. 500
E. None of these

Answer: B

Explanation:
$D=[(30,000 * 110 / 100 * 110 / 100)-30,000]-\frac{30,000 * 10 * 2}{100}$
$=[36300-30000]-6000$
$=6300-6000$
$D=300$
20. The difference between interest received by Vivek and Vimal is Rs. 405 on Rs. 4500 for 3 years. What is the difference in rate of interest?
A. $1.5 \%$
B. $2 \%$
C. $3 \%$
D. $2.7 \%$
E. None of these

Answer: C

Explanation:
$\frac{4500 * 3}{100(\mathrm{R} 1-\mathrm{R} 2)}=405$
$R 1-R 2=\frac{405 * 100}{13500}=3 \%$
21. A sum of rupees 3903 is divided between $P$ and $Q$ such that the share of $P$ at the end of 8 years is equal to the share of $Q$ after 10 years. Find the share of $P$ if rate of interest is $4 \%$ compounded annually.
A. 2012
B. 2029
C. 2028
D. 2081
E. None of these

Answer: C

Explanation:
$P *\left(\frac{(1+4)}{100}\right)^{8}=(3903-P)^{*}\left(\frac{(1+4)}{100}\right)^{10}$
22. A man borrows 2000 rupees at $10 \%$ compound interest. At the end every year he pays rupees 1000 back. How much amount should he pay at the end of the third Year to clear all his debt?
A. 252
B. 352
C. 452
D. 552
E. None of these

## Answer: B

## Explanation:

After one year amount $=\frac{2000 * 110}{100}=2200$
He pays 1000 back, so remaining $=2200-1000=1200$
After second year $=\frac{1200 * 110}{100}=1320$
He pays 1000 back, so remaining $=1320-1000=320$
After third year $=\frac{320 * 110}{100}=352$
23. A sum of rupees 3200 is compounded annually at the rate of 10 paisa per rupee per annum. Find the compound interest payable after $\mathbf{2}$ years.
A. 200
B. 842
C. 672
D. 832
E. None of these

## Answer: C

## Explanation:

Rate of interest is 10 paisa per rupee per annum. So for 100 rupees it is 1000 paise i.e. 10 percent
Now, $\mathrm{Cl}=3200\left(\frac{1+10}{100}\right)^{2}-3200=672$
24. What sum of money will amount to rupees 1124.76 in 3 years, if the rate of interest is $5 \%$ for the first year, $4 \%$ for the second year and $3 \%$ for the third year?
A. 1500
B. 1200
C. 1000
D. 1900
E. None of these

## Answer: C

## Explanation:

$1124.76=\mathrm{p}^{*}\left(\frac{105}{100}\right) *\left(\frac{104}{100}\right) *\left(\frac{103}{100}\right)$
25. Riya saves an amount of 500 every year and then lent that amount at an interest of 10 percent compounded annually. Find the amount after 3 years.
A. 1820.5
B. 1840.5
C. 1920.5
D. 1940.5
E. None of these

Answer: A
Explanation:
Total amount $=500 *\left(\frac{1+10}{100}\right)^{3}+500 *\left(\frac{1+10}{100}\right)^{3}+500 *\left(\frac{1+10}{100}\right)=1820.5$
26. A sum of 3000 becomes 3600 in 3 years at 15 percent per annum. What will be the sum at the same rate after 9 years?
A. 5124
B. 5184
C. 5186
D. 5192
E. None of these

Answer: B

## Explanation:

$3600=3000 *\left(\frac{1+15}{100}\right)^{3}$
$\left(\frac{1+15}{100}\right)^{3}=\frac{6}{5}$
Amount $=3000 *\left[\left(\frac{1+15}{100}\right)^{3}\right]^{3}$
Amount $=3000 *\left(\frac{6}{5}\right)^{3}=5184$
27. On a certain sum of money, after 2 years the simple interest and compound interest obtained are Rs 400 and Rs 600 respectively. What is the sum of money invested?
A. 100
B. 200
C. 300
D. 400
E. None of these

## Answer: B

Explanation:
$400=P *\left(\frac{R}{100}\right) * 2$
$600=P *\left(\frac{1+\mathrm{R}}{100}\right)^{2}-\mathrm{P}$
Solve both equations to get $P$
28. A sum of money becomes Rs 35,280 after 2 years and Rs 37,044 after 3 years when lent on compound interest. Find the principal amount.
A. 2800
B. 3000
C. 3200
D. 4000
E. None of these

## Answer: C

## Explanation:

$37044=p^{*}\left(\frac{1+r}{100}\right)^{3}$
$35280=p^{*}\left(\frac{1+\mathrm{r}}{100}\right)^{2}$
Divide both equations to get the value of $r$ and then substitute in any equation to get $P$
29. A sum of money is lent for $\mathbf{2}$ years at $10 \%$ p.a. compound interest. It yields Rs 8.81 more when compounded semi-annually than compounded annually. What is the sum lent?
A. 1000
B. 1200
C. 1400
D. 1600
E. None of these

Answer: D
Explanation:
$8.81=\mathrm{p}^{*}\left(\frac{1+5}{100}\right)^{4}-\mathrm{p}^{*}\left(\frac{1+10}{100}\right)^{2}$
30. A sum of rupees 4420 is to be divided between raj and parth in such a way that after 5 years and 7 years respectively the amount they get is equal. The rate of interest is 10 percent. Find the share of raj and parth
A. 2000,2420
B. 2420,2000
C. 2480,2420
D. 2210,2210
E. None of these

Answer: B
Explanation:

Let the share of raj and part be $R$ and $P$
$R *\left(\frac{1+10}{100}\right)^{5}=(4420-R)^{*}\left(\frac{1+10}{100}\right)^{7}$
We get $R=2420$, so $P=2000$
31. The difference between compound interest compounded every 6 months and simple interest after $\mathbf{2}$ years is $\mathbf{2 4 8 . 1 0}$. The rate of interest is $\mathbf{1 0}$ percent. Find the sum
A. 12000
B. 14000
C. 16000
D. 18000
E. None of these

Answer: C

## Explanation:

$\mathrm{P} *\left(\frac{1+5}{100}\right)^{4}-\mathrm{P}-\mathrm{P}^{*}\left(\frac{10}{100}\right)^{*} 2=248.10$
$P=16000$
32. A person earns an interest of 240 on investing certain amount at Simple interest for $\mathbf{2}$ years at 5 percent amount. If the rate of interest is compounded annually then how much more interest will be gain by the person at same rate of interest and on the same sum.
A. 6
B. 8
C. 12
D. 10
E. None of these

## Answer: A

## Explanation:

$240=P *\left(\frac{5}{100}\right) * 2, \mathrm{P}=2400$
$C I=2400\left(\frac{1+5}{100}\right)^{2}-2400=246$
So, $246-240=6$
33. Find the least number of years in which the sum put at $25 \%$ rate of interest will be more than doubled.
A. 2 years
B. 3 years
C. 4 years
D. 5 years
E. None of these

## Answer: C

## Explanation:

Amount $>=P *\left(\frac{1+25}{100}\right)^{\mathrm{n}}$
Amount $=p^{*}\left(\frac{5}{4}\right)^{n}$
For $n=4,\left(\frac{625}{256}\right)$ which is greater than 2 .
34. A sum of rupees 4420 is to be divided between rakesh and prakash in such a way that after 5 years and 7 years respectively the amount they get is equal. The rate of interest is $\mathbf{1 0}$ percent. Find the share of rakesh and prakash
A. 2000,2420
B. 2420,2000
C. 2480,2420
D. 2210,2210
E. None of these

Answer: B

## Explanation:

Let the share of rakesh and prakash be $R$ and $P$
$R *\left(\frac{1+10}{100}\right)^{5}=(4420-R)^{*}\left(\frac{1+10}{100}\right)^{7}$
We get $R=2420$, so $P=2000$
35. The simple interest on a certain sum of money for 4 years at 15 percent per annum is 600 . Find the compound interest in the same sum at 10 percent interest for 2 years
A. 220
B. 200
C. 210
D. 120
E. None of these

## Answer: C

## Explanation:

$600=\mathrm{p}^{*} 4^{*}\left(\frac{5}{100}\right), \mathrm{P}=1000$
$\mathrm{Cl}=1000\left(\frac{1+10}{100}\right)^{2}-1000=210$
36. Find the effective annual rate of 10 percent per annum compounded half- yearly-
A. 10.5
B. 10.25
C. 11.25
D. 11.50
E. None of these

## Answer: B

## Explanation:

Take principal as 100 and then calculate, TM
$\mathrm{A}=100 *\left(\frac{1+5}{100}\right)^{2}$
$A=110.25$
So effective rate is 10.25
37. A sum of rupees 3200 is compounded annually at the rate of 25 paise per rupee per annum. Find the compound interest payable after $\mathbf{2}$ years.
A. 1200
B. 1600
C. 1800
D. 2000
E. None of these

Answer: C

## Explanation:

Rate of interest is 25 paise per rupee per annum.
So for 100 rupees it is 2500 paise i.e. 25 percent
Now, $\mathrm{Cl}=3200\left(\frac{1+25}{100}\right)^{2}-3200=1800$
38. sum of 3000 becomes 3600 in $\mathbf{3}$ years at 15 percent per annum. What will be the sum at the same rate after 9 years.
A. 5124
B. 5184
C. 5186
D. 5192
E. None of these

Answer: B

## Explanation:

$3600=3000 *\left(\frac{1+15}{100}\right)^{3}$
$\left(\frac{1+15}{100}\right)^{3}=\frac{6}{5}$
Amount $=3000 *\left[\left(\frac{1+15}{100}\right)^{3}\right]^{3}$
Amount $=3000 *\left(\frac{6}{5}\right)^{3}=5184$
39. Priya saves an amount of 500 every year and then lent that amount at an interest of 10 percent compounded annually. Find the amount after 3 years.
A. 1820.5
B. 1840.5
C. 1920.5
D. 1940.5
E. None of these

## Answer: A

## Explanation:

Total amount $=500 *\left(\frac{1+10}{100}\right)^{3}+500 *\left(\frac{1+10}{100}\right)^{2}+500 *\left(\frac{1+10}{100}\right)$
$=1820.5$
40. A man borrows $\mathbf{1 0 0 0 0}$ rupees at $\mathbf{2 0} \%$ compound interest for $\mathbf{3}$ years. If every year he pays 2000 rupees as repayment. How much amount is still left to be paid by the man?
A. 5000
B. 7000
C. 9000
D. 10000
E. None of these

## Answer: D

## Explanation:

Amount to be paid at the end of three years $=10000 *\left(\frac{1+20}{100}\right)^{3}=17280$
Amount paid as installment by the man $=2000 *\left(\frac{1+20}{100}\right)^{2}+2000 *\left(\frac{1+20}{100}\right)+2000=7280$
So remaining amount $=10000$
41. On a certain sum of money, after 2 years the simple interest and compound interest obtained are Rs 800 and Rs 960 respectively. What is the sum of money invested?
A. Rs 1420
B. Rs 1325
C. Rs 1000
D. Rs 1405
E. Rs 1375

Answer: C

## Explanation:

Diff $=960-800=160$
$r=\frac{2 * \text { Diff } f 100}{\mathrm{SI}}$
So $r=\frac{2 * 160 * 100}{800}=40 \%$
Now $160=\frac{\mathrm{Pr} 2}{1002}$
42. Rs 6000 become Rs 7200 in $\mathbf{3}$ years at a certain rate of compound interest. What will be the amount received after 9 years?
A. Rs 11,498
B. Rs 10,352
C. Rs 9,368
D. Rs 10,368
E. None of these

## Answer: D

## Explanation:

$6000\left[100 \frac{1+r}{100}\right]^{3}=7200$
So $\left[100 \frac{1+r}{100}\right]^{3}=\frac{6}{5}$

So $6000\left[100 \frac{1+\mathrm{r}}{100}\right]^{9}=6000 *\left(\frac{6}{5}\right) *\left(\frac{6}{5}\right) *\left(\frac{6}{5}\right)$
43. A man borrows Rs 4000 at $8 \%$ compound interest for 3 years. At the end of each year he paid Rs 500. How much amount should he pay at the end of 3rd year to clear the debt?
A. Rs 4254.5
B. Rs 3465.2
C. Rs 3485.2
D. Rs 4345.4
E. Rs 3915.6

## Answer: E

## Explanation:

Amount after $1 \mathrm{yr}=4000\left[\frac{1+8}{100}\right]=4320$
Paid 500, so $P=4320-500=3820$

Amount after $2 \mathrm{nd} \mathrm{yr}=3820\left[\frac{1+8}{100}\right]=4125.6$ TM

So $P=4125.6-500=3625.6$
Amount after $3 \mathrm{rd} \mathrm{yr}=3625.6\left[\frac{1+8}{100}\right]=3915.6$
44. A sum of money is lent for 2 years at $\mathbf{2 0 \%}$ p.a. compound interest. It yields Rs 482 more when compounded semi-annually than compounded annually. What is the sum lent?
A. Rs 25,600
B. Rs 20,000
C. Rs 26,040
D. Rs 40,500
E. None of these

Answer: B

Explanation:
$P\left[1+\frac{(r / 2)}{100}\right]^{4}-P\left[\frac{1+r}{100}\right]^{2}=482$
$P\left[\frac{1+10}{100}\right]^{4}-P\left[\frac{1+20}{100}\right]^{2}=482$

Solve, $P=20,000$
45. The compound interest obtained after 1st and 2 nd year is Rs 160 and Rs 172.8 respectively on a certain sum of money invested for $\mathbf{2}$ years. What is the rate of interest?
A. $10 \%$
B. $8 \%$
C. $8.5 \%$
D. 9\%
E. $9.2 \%$

## Answer: B

## Explanation:

Difference in interest for both yrs $=172.8-160=12.8$

So $(r / 100) * 160=12.8$
46. A sum of money becomes Rs 35,280 after 2 years and Rs 37,044 after 3 years when lent on compound interest. Find the principal amount.
A. Rs 32,000
B. Rs 28,000
C. Rs 31,500
D. Rs 32,500
E. None of these

Answer: A

Explanation:
$P\left[\frac{1+r}{100}\right]^{3}=37,044$, and $P\left[\frac{1+r}{100}\right]^{2}=35,280$
Divide both equations, $\left[\frac{1+\mathrm{r}}{100}\right]=\frac{37044}{35280}=\frac{21}{20}$
So $P\left[\frac{21}{20}\right]^{2}=35280$
47. The difference between compound interest earned after 3 years at 5\% p.a. and simple interest earned after 4 years at 4\% p.a. is Rs 76. Find the principal amount.
A. Rs 32,000
B. Rs 28,000
C. Rs 31,500
D. Rs 32,500
E. None of these

Answer: A

$$
\left[P\left[1+\frac{1+5}{100}\right] 3-P\right]-\frac{P * 4 * 4}{100}=76
$$

$\mathrm{P}\left[\frac{9261}{8000} 1-\frac{16}{100}\right]=76$
48. A sum of money is lent at simple interest and compound interest. The ratio between the difference of compound interest and simple interest of $\mathbf{3}$ years and 2 years is $35: 11$. What is the rate of interest per annum?
A. $203 / 4 \%$
B. $172 / 5 \%$
C. $182 / 11 \%$
D. $221 / 5 \%$
E. $245 / 6 \%$

## Answer: C

## Explanation:

Difference in 3 yrs $=\frac{\left(P r^{2} 300+r\right)}{1003}$
Difference in $2 \mathrm{yrs}=\frac{P r^{2}}{1002}$
So $\operatorname{Pr}^{2}(300+r) / 1003 / \operatorname{Pr}^{2} / 1002=35 / 11(300+r) / 100=35 / 11$
49. A sum of money borrowed at $5 \%$ compound interest is to paid in two annual installments of Rs 882 each. What is the sum borrowed?
A. Rs 1650
B. Rs 2340
C. Rs 2630
D. Rs 1640
E. Rs 2640

Answer: D

## Explanation:

$P=\frac{882}{[1+5 / 100]}+882 \frac{882}{[1+5 / 100] 2}$
50. Rs 3903 is to be divided in a way that A's share at the end of 7 years is equal to the $B^{\prime} s$ share at the end of 9 years. If the rate of interest is $4 \%$ compounded annually, find A's share.
A. Rs 2475
B. Rs 1875
C. Rs 2175
D. Rs 1935
E. Rs 2028

Answer: B

## Explanation:

$A^{\prime}$ s share $=\left(\frac{1+4}{100}\right)^{7}$
$B^{\prime}$ s share $=\left(\frac{1+4}{100}\right)^{9}$
Divide both, $B / A=\left(\frac{1+4}{100}\right)^{2}=\frac{675}{625}$
So A's share $=\frac{625}{(676+625)} * 3903$


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