

Q 14. Write a JavaScript program for calculating compound interest.

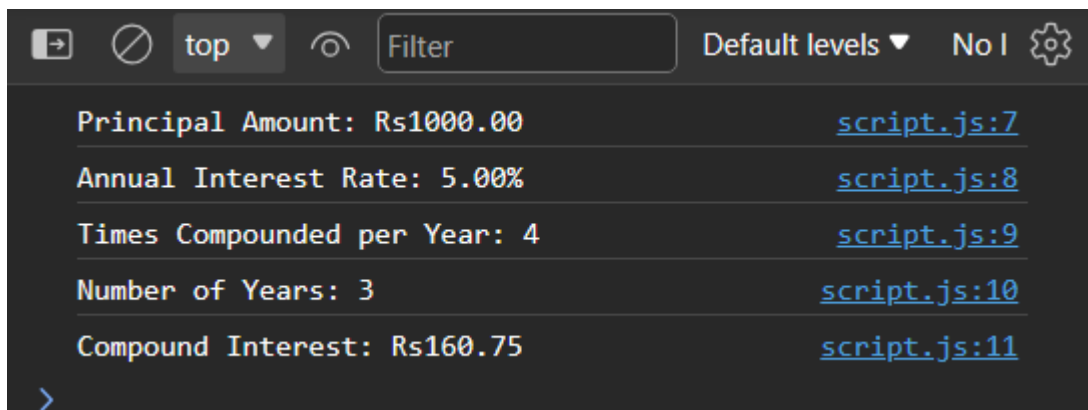
Ans:

$$\text{Compound Interest} = P \left(1 + \frac{r}{n}\right)^{nt} - P$$

- P is the principal amount (initial investment),
- r is the annual interest rate (as a decimal),
- n is the number of times that interest is compounded per year,
- t is the number of years.

```
function calculateCompoundInterest(principal, rate, timesCompounded, years) {  
    // Converting annual interest rate to a decimal  
    var decimalRate = rate / 100;  
    // Calculating compound interest  
    var compoundInterest = principal * Math.pow((1 + decimalRate /  
timesCompounded), timesCompounded * years) - principal;  
  
    console.log("Principal Amount: Rs" + principal.toFixed(2));  
    console.log("Annual Interest Rate: " + rate.toFixed(2) + "%");  
    console.log("Times Compounded per Year: " + timesCompounded);  
    console.log("Number of Years: " + years);  
    console.log("Compound Interest: Rs" + compoundInterest.toFixed(2));  
}  
  
var principalAmount = 1000;  
var annualInterestRate = 5;  
var timesCompoundedPerYear = 4;  
var numberOfYears = 3;  
  
calculateCompoundInterest(principalAmount, annualInterestRate,  
timesCompoundedPerYear, numberOfYears);
```

Output:



```
Principal Amount: Rs1000.00 script.js:7  
Annual Interest Rate: 5.00% script.js:8  
Times Compounded per Year: 4 script.js:9  
Number of Years: 3 script.js:10  
Compound Interest: Rs160.75 script.js:11
```