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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;
    // Calculateing 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: