1. Write a pseudocode to accept principle, rate of interest and time. Calculate simple interest and display the same

2. Write a pseudocode to accept two numbers. Display the two numbers. Swap the two numbers and display them again.

3. Write a pseudocode to accept a number and display whether it is an even or odd number

4. Write a pseudocode to accept a double value. Separate the whole value from the fractional value and store them in two variables. Display the same.

5. Write a pseudocode to accept a student's name and scores in three subject. Display the average and total. Display whether the student has secured 1^{st}, 2^{nd}, pass class or has failed. 1^{st} class is for a score of 60 and above, 2^{nd} is for a score of 50 and above, while pass class is for a score of 35 and above. If the score is less than 35, then the student fails.

6. Write a pseudocode to find the largest and second largest of 3 numbers

7. Write a pseudocode to accept name, empId, basic, special allowances, percentage of bonus and monthly tax saving investments. The gross monthly salary is basic + special allowances. Compute the annual salary. The gross annual salary also includes the bonus. Compute the annual net salary, by deducting taxes as suggested.

Income upto 1 lac - exempted

Income from 1 to 1.5 lac - 20%

Income from 1.5 lac onwards - 30%

However if there is any tax saving investment, then there is further exemption of upto 1 lac annually. This would mean that by having tax saving investments of about 1 lac, an income of 2 lacs is non-taxable. Display the annual gross, annual net and tax payable.

8. A vendor offers software services to a client. Each resource is billed at some dollar rate per hour. The total cost of the project for the client is therefore, the total number of hours contributed by all the vendor resources * the dollar rate / hour. There are however some variants.

The vendor might have purchased hardware/infrastructure or software licenses needed for the project.

The vendor might have utilized external consultants for the project.

The client looks at the vendor as a one-stop solution and hence external resources employed by the vendor need to be paid by the vendor.

It might however be possible that the vendor's hardware and software purchases are borne by the client. In this case, the client pays the vendor 30% of the hardware/infrastructure costs. In case of software licenses, the client pays the vendor 50% of the cost, if they are commonly available and used, or 100% if the software is infrequently used or is proprietary client technology.

The external consultants employed by the vendor will come at a dollar rate per hour.

Accept the suitable inputs and display the profits / loss realized by the vendor.

9. Write a pseudocode to find the sum of all odd numbers from 1 to N. Accept N. Display the sum.

10. Write a pseudocode to find the reverse of a number. Store the reverse value in a different variable. Display the reverse.

11. Write a pseudocode to display a number in words.

Ex. 270176

Output: Two Seven Zero One Seven Six

12. Write as many pseudocodes to generate the following series. In all the following cases, accept N:

4, 16, 36, 64, … N

1, -2, 3, -4, 5, -6, … N

1, 4, 27, 256, 3125, … N

1, 4, 7, 12, 23, 42, 77, … N

1, 4, 9, 25, 36, 49, 81, 100, … N

1, 5, 13, 29, 49, 77, … N

13. Write a pseudocode to find the sum of all the prime numbers in the range n to m. Display each prime number and also the final sum.

14. Write a pseudocode to find the factorial of a given number. 0! is always 1. Factorial of a negative number is not possible.

15. Write a pseudocode to accept a decimal number. Display it in the binary form.

16. Write a pseudocode to accept a binary number and display it in the decimal form.

17. Write a pseudocode to display the 1^{st} , 2^{nd} , and 4^{th} multiple of 7 which gives the remainder 1 when divided by 2,3,4,5 and 6

18. Write a pseudocode to do the following:

Accept the item code, description, qty and price of an item. Compute the total for the item.

Accept the user's choice. If the choice is 'y' then accept the next set of inputs for a new item and compute the total. In this manner, compute the grand total for all the items purchased by the customer.

If the grand total is more than Rs. 10,000/- then, the customer is allowed a discount of 10%.

If the grand total is less than Rs. 1,000/- and the customer chooses to pay by card, then a surcharge of 2.5% is levied on the grand total.

Display the grand total for the customer.

19. Write the pseudocodes to generate the following series. In all the following cases, accept N:

1, -2, 6, -15, 31, -56, … N

1, 1, 2, 3, 5, 8, 13, … N

1, -2, 4, -6, 7,-10, 10,-14… N

1, 5, 8, 14, 27, 49, … N

20. Write a pseudocode to find X^n (x to the power of n). Accept X and n. Display the result.

21. Write a pseudocode to display the reverse of a string.

22. Write a pseudocode to check if the string is a palindrome

23. Write the pseudocodes to generate the following outputs. In all the following cases, accept N:

*** * * * ***

*** * * * ***

*** * * * ***

*** * * * ***

:

N rows

1 1 1 1 1

2 2 2 2 2

3 3 3 3 3

4 4 4 4 4

:

N rows

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

:

N rows

*****

*** ***

*** * ***

*** * * ***

:

N rows

24. Write the pseudocodes to generate the following outputs. In all the following cases, accept N:

1

1 2

1 2 3

1 2 3 4

:

N rows

1

2 2

3 3 3

4 4 4 4

:

N rows

1

2 3

4 5 6

7 8 9 10

:

N rows

1

1 2

3 5 8

:

:

N rows

25. Write the pseudocodes to generate the following outputs. In all the following cases, accept N:

1

-4 9

-16 25 -36

:

:

N rows

1

1 2

6 24 120

:

:

N rows

```
      *
    * *
  * * *
* * * *
```

:

N rows

```
      *
    * * *
  * * * * *
* * * * * * *
```

:

N rows

26. Write a pseudocode to store N elements in an array of integer. Display the elements. Accept a number to be searched. Display whether the number is found or not in the array (LINEAR SEARCH).

27. Write a pseudocode to store N elements in an array of integer. Display the elements. Sort the elements. Accept a number to be searched. Display whether the number is found or not in the array using BINARY SEARCH.

28. Write a pseudocode to store elements into a M * N matrix of integer. Display the matrix and its transpose.

29. Write a pseudocode to store elements into a N * N matrix of integer. Display whether it is an identity matrix or not.

30. Write a pseudocode to store elements into a N * N matrix of integer. Display whether it is a symmetric matrix or not.