**Assignment based on Factors**

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| int i,x;  printf("Give number");  scanf("%d",&x);  for (i=2;i<=x/2;i++)  if (x%i==0)  {  printf("%d\n",i);  } | int i,x;  scanf("%d",&x);  i=2;  while (x%i!=0)  i=i+1;  printf("%d",i); | int i,x;  printf("Give number");  scanf("%d",&x);  for (i=2;x%i!=0;i++)**;**  printf("%d",i); |
| prints all factor | Finds smallest factor | **Alternative method to find the smallest factor** |
| The number 385 has factors 5, 7, 11, 35, 55, 77. The smallest factor is 5.  The number 24 has factors 2, 3, 4, 6, 8, 12, 24. The smallest factor is 2. | | |

1. Write a program, which will print last digits of all factors. Input 385 output 5 7 1 5 5 7 5.
2. Write program, which will output all factors by exchanging last two digits. Input 385 output 50 70 11 53 55 77 358.
3. Write program, which prints sum of all factors (input 24 output 2 + 3 + 4 + 6 + 8 + 12 + 24 = 59). Input 35 output 5+7+35=47.
4. Write program, to find the number of factors. Input 24 output 7. Input 35 output 3.
5. Write program to find average factor. I/p 24 o/p 8.429 (59/7) I/p 25 o/p 15.67 (47/3)
6. Write program, which reads a number and prints “yes” if the given number is prime. If the given number is not a prime then “no” is printed. (Hint: Use above program. A prime number has only one factor). Input 24 output “no”. Input 13 output “yes”.
7. Write program, which outputs all factors and its count. When number is 24 (1,2) (2,3) (3,4) (4,6) (5,8) (6,12) (7,24) will be printed.
8. Write program, which reads another integer k and prints the kth factor. If given number is 24 and k is 5 then output is 8.
9. Write program, which reads a number and prints only those factors, which leave remainder 2 when divided by 5. e.g. if given number is 24 then its factors are 2, 3, 4, 6, 8, 12 and 24. However, only 2 and 12 will be printed.
10. Write program, which reads a number and prints “yes” if the given number is prime. If the given number is not a prime then “no” is printed. (Use the program to find smallest factor. The smallest factor of a prime number is equal to itself).
11. Write program, which prints biggest factor other than itself.
12. Write program, which prints the smallest and second smallest factors. If number is 24 then outputs are 2 and 3. If number is 65 then outputs are 5 and 13.
13. Write program, which reads two numbers and finds the sum of smallest factors. e.g. input number 35 and 21 output 5+3=8.
14. Write program, which reads a number. Let ‘t’ be its smallest factor. The program finds the smallest factor of t+2. e.g. input 77 output 3 (since smallest factor of 77 is 7 and smallest factor of 7+2 is 3). Input 55 output 7.
15. Write program, which reads two numbers and prints all common factors. If given numbers are 24 and 54 then outputs are 2, 3 and 6.
16. Modify the above program to print the greatest common factor. Input 24 35 output 1. Input 42, 54 output 6.
17. Modify the above program to print the smallest common factor. Input 24, 15 output 3.
18. Write program, which reads two numbers and finds the least common multiplier. e.g. input 24 and 54 then output is 216. [Do not use the method of (a\*b/gcd(a,b)).] [Hint: modify above program by replacing x%i by i%x]
19. Write program, which reads a number and prints all factors using ‘while’ (in place of ‘for’).
20. Write program, which finds the sum of product of consecutive factors. e.g. if given number is 12 then answer is 114. Since 2.3+3.4+4.6+6.12=114.
21. Write program, which outputs pairs of consecutive factors. e.g. if input is 12 then output is (1,2)(2,3)(3,4)(4,6)(6,12). Input 385 output (1,5)(5,7)(7,11)(11,35) (35,55) (55,77) (77,385).
22. Modify above to output (2,3)(3,4)(4,6)(6,12) and (5,7)(7,11)(11,35)(35,55)(55,77) (77,385).