

1. Write a program that asks the user to enter an article, a noun, and a verb. The program then creates a sentence of the form *article noun verb*.
2. Write a program that asks the user to enter a temperature in degrees Celsius. The program will convert the temperature to degrees Fahrenheit and display the result to the user with an appropriate message. (Hint: $F^{\circ} = (1.8 \times C^{\circ}) + 32$.)
3. Write a program that reads the lengths of the two sides of a right triangle and calculates the length of the hypotenuse.
4. Write a program that prompts the user to enter the length (L), width (W), and height (H) of a box. The program will then compute and display the volume and surface area of the box. (Hint: $Volume = L \times W \times H$; $Surface\ area = 2 \times [(L \times W) + (L \times H) + (H \times W)]$.)
5. Express each of the following statements using an **if** block:
 - a. If x divided by y is 5, then set x to 100.
 - b. If x times y is 5, then set x to 1.
 - c. If x is less than y , then double the value of x .
 - d. If x is greater than y , then increment the value of x by 1.
6. Write a program that prompts the user to enter five test scores between 1 and 10. The program will then count the number of scores that are greater than 7.
7. Express each of the following statements using an **if/else** block:
 - a. If x times y is 8, then set x to 1; otherwise, set x to 2.
 - b. If x is less than y , then double the value of x ; otherwise, increment x by 1.
 - c. If x is greater than y , then increment both by 1; otherwise, decrement both by 1.
8. Write a program that asks the user to enter three numbers. The program will then determine and print the largest of the three numbers.
9. Create an input validation loop that only accepts numbers in the range of 1 through 10.
10. Write a script that asks the user, "Are you sure you want to quit [Y, N]?" The script then checks the user's input and only accepts the letters Y and N as valid answers.

11. A company sells five different products whose retail prices are shown in the following table. Write a program that asks the user to enter the product number and the quantity sold. The program will then calculate and display the total retail value.

product number	retail price
1	2.95
2	4.99
3	5.49
4	7.80
5	8.85

12. The *triangle inequality theorem* states that the sum of the lengths of any two sides of a triangle is greater than the length of the third side. Write a program that gets three numbers from the user and determines whether they could represent the sides of a triangle.
13. The *Pythagorean theorem* states that if a and b are the lengths of the legs of a right triangle and c is the length of the hypotenuse (the longest side), then $a^2 + b^2 = c^2$. Write a program that gets three numbers from the user and determines whether they could represent the sides of a right triangle
14. Write a program that calculates and displays the sum of all integers between 1 and 20.
15. Write a program that calculates and displays the sum of all odd integers between 1 and 20.
16. Write a program that displays the first 10 numbers in the following sequence:
5, 9, 13, 17, 21,
17. An integer is said to be prime if it is divisible by only 1 and itself. For example, 2, 3, 5, 7, 11 are prime numbers, but 4, 6, and 8 are not.
What are the outputs of this procedure for the inputs 127, 327, and 523?

18. The sequence of numbers 0, 1, 1, 2, 3, 5, 8, 13, 21, 34 is called a Fibonacci series. The first two numbers in the series are 0 and 1. Each subsequent number is then calculated as the sum of the previous two. Write a program that calculates the n th term of the Fibonacci series, where n is entered by the user. Use a recursive function call
19. Write a program that asks the user to enter a word. The program then determines the number of occurrences of the letter a in the input word.
20. Write a program that reads a single character (between a and z) from the user and outputs the position of that character in the alphabet ($a = 1, b = 2, c = 3$, and so on). Uppercase letters and lowercase letters should be treated the same. (Hint: Define a variable named *alpha* that holds the letters of the alphabet and then use a loop to find the position of the input character within the variable *alpha*.)
21. Write a program that reads a positive integer from the user then finds and displays the sum of its digits. For example, if the user enters 3582, the program should display 18 ($3 + 5 + 8 + 2$).
22. Create a list that contains the first 10 prime numbers.
23. Create three lists to store personal records. The first list stores names, the second list stores birth dates, and the third list stores phone numbers. Write a program that asks the user the name of the person whose contact information is needed. If the person's name exists in the first list, the program will say the person's birth date and phone number.
24. Create two lists for storing the items sold in a grocery store and their corresponding prices. Write a program that asks the user to enter an item's name and then displays that item's price, if it is found in the list.
25. Write a program that prompts the user to enter the highest and lowest temperatures for the 12 months of a year. Store the input values in two lists.
26. Write a program that prompts the user to enter 10 integers. Store each entered number into a list only if it is not a duplicate of a previously entered number.
27. Write a program that processes a list of 20 scores on a test with 100 items and finds the number of students who scored between 85 and 90.