Practice Programming questions: Conditional statements and operators

1. **Input** marks of five different subjects (you are taking in this semester) from user along with student roll no. Each subject has total marks equal to 100. **Print** total marks, average marks and percentage marks. Then show grade of student according to following criteria.

Marks (%age)	Grade	Grade Points
0	F	0.00
50	D	1.00
55	C-	1.70
58	C	2.00
61	C+	2.30
65	B-	2.70
70	B	3.00
75	B+	3.30
80	A-	3.70
85	A	4.00

The third column of above table shows grade points (GP). Then **display** grade point average (GPA) by multiplying each subject's Grade point with credit hours (hours per week in schedule) of that subject and then add for all subjects and divide this sum by total credit hours of a semester. Assume that first 3 subjects have 3 credit hours each and last 2 subjects have 4 credit hours each.

2. Input date of birth and today's date from user and print users' age in days, months and years.
3. Input start time and end time of a task and display duration this task took to be completed.
4. One way to determine how healthy a person is by measuring the body fat of the person. The formulas to determine the body fat for female and male are as follows:
   Body fat formula for women:
   A1 = (body weight x0.732) + 8.987
   A2 = wrist measurement (at fullest point) / 3.140
   A3 = waist measurement (at navel) x0.157
   A4 = hip measurement (at fullest point) x0.249
   A5 = forearm measurement (at fullest point)x 0.434
   B = A1 + A2 – A3 – A4 + A5
   Body fat = body weight – B
   Body fat percentage = body fat x100 / body weight

   Body fat formula for men:
   A1 =(body weight x1.082) + 94.42
   A2 =wrist measurement x 4.15
   B = A1 – A2
   Body fat = body weight – B
   Body fat percentage = body fat x 100 / body weight

   Write a program to calculate the body fat of a person

5. You have several pictures of different sizes that you would like to frame. A local picture-framing store offers two types of frames—regular and fancy. The frames are available in white and can be ordered in any color the customer desires. Suppose that each frame is 1 inch wide. The cost of coloring the frame is $0.10 per inch. The cost of a regular frame is $0.15 per inch, and the cost of a fancy frame is $0.25 per inch. The cost of putting a cardboard paper behind the picture is $0.02 per square inch, and the cost of putting glass on top of the picture is $0.07 per square inch. The customer can also choose to put crowns on the corners, which costs $0.35 per crown. Write a program that prompts the user to input the following information and then output the cost of framing the picture:
   a. The length and width, in inches, of the picture
   b. The type of the frame
   c. Customer's choice of color to color the frame
   d. If the user wants to put the crowns, then the number of crowns

6. A bank in your town updates its customers' accounts at the end of each month. The bank offers two types of accounts: savings and checking. Every customer must maintain a minimum balance. If a customer's balance falls below the minimum balance, there is a service charge of $10.00 for savings accounts and $25.00 for checking accounts. If the balance at the end of the month is at least the minimum balance, the account receives interest as follows:
   a. Savings accounts receive 4% interest.
   b. Checking accounts with balances of up to $5,000 more than the minimum balance receive 3% interest; otherwise, the interest is 5%.
   Write a program that reads a customer's account number (`int` type), account type (`char`; `s` for savings, `c` for checking), minimum balance that the account should maintain, and current balance. The program should then output the account number, account type, current balance, and an appropriate message. Test your program by running it five times, using the following data:
   - 46728 S 1000 2700
   - 87324 C 1500 7689
   - 79873 S 1000 800
   - 89832 C 2000 3000
   - 98322 C 1000 750
7. A box of cookies can hold 24 cookies, and a container can hold 75 boxes of cookies. Write a program that prompts the user to enter the total number of cookies, the number of cookies in a box, and the number of cookie boxes in a container. The program then outputs the number of boxes and the number of containers to ship the cookies. Note that each box must contain the specified number of cookies, and each container must contain the specified number of boxes. If the last box of cookies contains less than the number of specified cookies, you can discard it and output the number of leftover cookies. Similarly, if the last container contains less than the number of specified boxes, you can discard it and output the number of leftover boxes.

8. In a right triangle, the square of the length of one side is equal to the sum of the squares of the lengths of the other two sides. Write a program that prompts the user to enter the lengths of three sides of a triangle and then outputs a message indicating whether the triangle is a right triangle.