

Assignment 3 (If else)

- 1) Write program, which reads three numbers and prints the biggest number.
- 2) Write program, which reads four numbers and prints the biggest number.
- 3) Write program, which reads 2 numbers and prints both of them. The bigger number is printed first.
- 4) Write program, which reads a, b, and c as sides of a triangle and prints whether angle A is 90° or not. [Hint: if($a^2 == b^2 + c^2$)] [Do not use $\cos^{-1}(x)$ etc.]
- 5) Write program, which reads a, b, and c. Let $ax + by + c = 0$ be the equation of a line. Print its slope. The program also prints whether the line is vertical or not.
- 6) Write program, which reads a, b, and c. Let $ax^2 + bx + c = 0$ be a quadratic equation. If roots are real and distinct then both roots are printed. If roots are equal then only one root is printed. If roots are imaginary then real part and complex parts of both roots are printed. For example, if input is a=1, b=8, and c=25, then output is -4, 3, and -3; if input is a=2, b=8, and c=8, then output is 2. Input: 2 10 12; Output -3 and -2.
- 7) Modify the above program to print roots as, $-4 + 3i$ and $-4 - 3i$ for above input.
- 8) Write program, which reads three numbers. Two of these are same and one of them is different. The program outputs the different number. For example, Input: 5 5 2; Output: 2. Input: 4 3 4; Output: 3. Input: 5 2 2; Output: 5.
- 9) Write program, which reads 5 numbers a, b, c, d, and x. Here a, b, c, and d are distinct and x is equal to exactly one of a or b or c or d. The program output which is equal to x. For example, Input: 5 7 9 6 7; Output: x is equal to b. Input: 8 7 1 3 1; Output: x is equal to c.
- 10) Write program, which reads 5 numbers a, b, c, d, and x. The program output how many among a, b, c, and d are equal to x. For example, Input: 5 7 9 7 7; Output: 2. Input: 5 3 8 7 2; Output: 0. Input: 5 2 2 2 5; Output: 1.
- 11) Write program, which reads three numbers. The program outputs the middle (in terms of value) of these. For example, Input: 5 2 4; Output: 4. Input: 5 6 2; Output 5.
- 12) Read p, q, r, a, b, c. Let $ax + by + c = 0$ be a line. Let (p, q) be the center of a circle and r be its radius. The program finds whether the circle and the line intersect or not. If they intersect: let A and B be the points of intersection of the circle and the line. Find the area of the triangle formed by A, B, and the center of the circle. [Hint: Find the distance of the line from the center. If it is more than the radius then circle and the line do not intersect. Otherwise find the chord length AB]. Input: 5 4 10 1 1 20; Output: "no intersection". Input: 7 4 13 3 4 23; Output: 60.