

1. Write a Java program to get a number from the user and print whether it is positive, negative or zero.
2. The two roots of a quadratic equation $ax^2 + bx + c = 0$ can be obtained using the following formula:

$$r1 = \frac{-b + \sqrt{b^2 - 4ac}}{2a}$$

$$r2 = \frac{-b - \sqrt{b^2 - 4ac}}{2a}$$

$b^2 - 4ac$ is called the discriminant of the quadratic equation. If it is positive, the equation has two real roots. If it is zero, the equation has one root. If it is negative, the equation has no real roots.

Write a program that prompts the user to enter values for a, b and c and displays the result based on the discriminant. If the discriminant is positive, display two roots. If the discriminant is 0, display one root. Otherwise, display "The equation has no real roots".

Try with a, b, c: 1, 3, 1

Try with a, b, c: 1 2 1

Try with a, b, c: 1 2 3

3. At a playground, all children aged 10 or over are allowed to ride bicycle. For children under 10, they can only ride the bicycle if their height is over 120cm. Write a program that asks the user for their age and prints if they are allowed on the ride or not.

Note: You should only ask the user for their height if this is required for your code to make a decision

4. Write a program that plays rock-paper-scissors with the user. Generate a random integer that can be 1, 2 or 3. Rock is represented with 1, paper is represented with 2 and scissors is represented with 3. Ask the user to enter their choice and display the results to user. If user enters anything other than 1, 2 or 3, print an error message.
5. Write a program that calculates the grade of a student, given final, midterm, quiz1 and quiz2 exams. If student's score is bigger than 90, student's grade is A, if it is less than 90 and greater than 80 grade is B.

Calculate the grades until 50