

Basic Example of Implementation and Idea

Math Problem Generation

```
import java.util.Random;
import java.util.Scanner;

public class MathOps
{
    public static void main(String[] args)
    {
        Random rand = new Random();
        Scanner sc = new Scanner(System.in);
        int dividend = rand.nextInt(10) + 1;
        int divisor = rand.nextInt(9) + 1;
        System.out.println(dividend + " ÷ " + divisor);
        int answer = sc.nextInt();
        System.out.println(answer == dividend / divisor ? "Correct!" : "Wrong!");
    }
}
```

Feedback

```
public class MathOps
{
    public static void main(String[] args)
    {
        int userAnswer = 7, correctAnswer = 8;
        System.out.println(userAnswer == correctAnswer ? "Correct!" : "Try again!");
    }
}
```

Difficulty

```
import java.util.Random;

public class MathOps
{
    public static void main(String[] args)
    {
        Random rand = new Random();
        int level = 1;
        int dividend = level == 1 ? rand.nextInt(10) + 1 : rand.nextInt(90) + 10;
        System.out.println("Problem: " + dividend);
    }
}
```

Progress

```
public class MathOps
{
    public static void main(String[] args)
    {
        int score = 7, level = score >= 10 ? 3 : (score >= 5 ? 2 : 1);
        System.out.println("Score: " + score + ", Level: " + level);
    }
}
```

Example Run

```
import java.util.Random;
import java.util.Scanner;

public class MathOpsGame
{
    public static void main(String[] args)
    {
        Random rand = new Random();
        Scanner sc = new Scanner(System.in);
        int score = 0, level = 1;
        while (true)
        {
            int dividend = level == 1 ? rand.nextInt(10) + 1 : rand.nextInt(90) + 10;
            int divisor = rand.nextInt(9) + 1;
            System.out.println(dividend + " ÷ " + divisor);
            int answer = sc.nextInt();
            if (answer == dividend / divisor) score++;
            level = score >= 10 ? 3 : (score >= 5 ? 2 : 1);
            System.out.println("Score: " + score + ", Level: " + level);
        }
    }
}
```