20. write a program to create arithmetics math calculator using applet class and event handling

import java.applet.Applet;

import java.awt.\*;

import java.awt.event.\*;

public class ArithmeticCalculator extends Applet implements ActionListener {

 // Declare components

 TextField num1, num2, result;

 Button add, subtract, multiply, divide;

 Label label1, label2, label3;

 public void init() {

 // Set layout

 setLayout(new GridLayout(5, 2));

 // Initialize components

 label1 = new Label("First Number:");

 num1 = new TextField(10);

 label2 = new Label("Second Number:");

 num2 = new TextField(10);

 label3 = new Label("Result:");

 result = new TextField(10);

 result.setEditable(false);

 add = new Button("Add");

 subtract = new Button("Subtract");

 multiply = new Button("Multiply");

 divide = new Button("Divide");

 // Add components to applet

 add(label1);

 add(num1);

 add(label2);

 add(num2);

 add(label3);

 add(result);

 add(add);

 add(subtract);

 add(multiply);

 add(divide);

 // Register event listeners

 add.addActionListener(this);

 subtract.addActionListener(this);

 multiply.addActionListener(this);

 divide.addActionListener(this);

 }

 public void actionPerformed(ActionEvent e) {

 double n1 = 0, n2 = 0, res = 0;

 String str1 = num1.getText();

 String str2 = num2.getText();

 // Input validation

 try {

 n1 = Double.parseDouble(str1);

 n2 = Double.parseDouble(str2);

 } catch (NumberFormatException ex) {

 result.setText("Invalid input");

 return;

 }

 // Perform operation based on the button clicked

 if (e.getSource() == add) {

 res = n1 + n2;

 } else if (e.getSource() == subtract) {

 res = n1 - n2;

 } else if (e.getSource() == multiply) {

 res = n1 \* n2;

 } else if (e.getSource() == divide) {

 if (n2 != 0) {

 res = n1 / n2;

 } else {

 result.setText("Cannot divide by zero");

 return;

 }

 }

 // Display result

 result.setText(String.valueOf(res));

 }

}