PROGRAM:

AndroidManifest.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools">

    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Myapplication"
        tools:targetApi="31">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>
</manifest>
```

PROGRAM:
Activity_main.xml
```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp"
    android:background="@color/light_purple">

    <TextView
        android:id="@+id/display"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:gravity="end"
        android:textSize="32sp"
        android:text="0" />

    <GridLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="16dp"
        android:columnCount="4"
        android:rowCount="5">

        <!-- Row 1 -->
        <Button android:text="sin" android:id="@+id/btnSin" />
        <Button android:text="cos" android:id="@+id/btnCos" />
        <Button android:text="tan" android:id="@+id/btnTan" />
        <Button android:text="log" android:id="@+id/btnLog" />

        <!-- Row 2 -->
        <Button android:text="7" android:id="@+id/btn7" />
        <Button android:text="8" android:id="@+id/btn8" />
        <Button android:text="9" android:id="@+id/btn9" />
        <Button android:text="/" android:id="@+id/btnDiv" />

        <!-- Row 3 -->
        <Button android:text="4" android:id="@+id/btn4" />
        <Button android:text="5" android:id="@+id/btn5" />
        <Button android:text="6" android:id="@+id/btn6" />
        <Button android:text="*" android:id="@+id/btnMul" />

        <!-- Row 4 -->
        <Button android:text="1" android:id="@+id/btn1" />
        <Button android:text="2" android:id="@+id/btn2" />
        <Button android:text="3" android:id="@+id/btn3" />
        <Button android:text="-" android:id="@+id/btnSub" />

        <!-- Row 5 -->
        <Button android:text="0" android:id="@+id/btn0" />
        <Button android:text="." android:id="@+id/btnDot" />
        <Button android:text="C" android:id="@+id/btnClear" />
        <Button android:text="+" android:id="@+id/btnAdd" />
```

```xml
        <!-- Row 6 -->
        <Button android:text="=" android:id="@+id/btnEqual" />
    </GridLayout>
</LinearLayout>
```

Colors.xml

```xml
?xml version="1.0" encoding="utf-8"?>
<resources>
    <color name="light_purple">#D3A9D2</color>
</resources>
```

MainActivity.java

```java
package com.example.myapplication;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    private TextView display;
    private String input = "";
    private boolean isNewOp = true;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        display = findViewById(R.id.display);

        // Number buttons
        findViewById(R.id.btn0).setOnClickListener(this::onNumberClick);
        findViewById(R.id.btn1).setOnClickListener(this::onNumberClick);
        findViewById(R.id.btn2).setOnClickListener(this::onNumberClick);
        findViewById(R.id.btn3).setOnClickListener(this::onNumberClick);
        findViewById(R.id.btn4).setOnClickListener(this::onNumberClick);
        findViewById(R.id.btn5).setOnClickListener(this::onNumberClick);
        findViewById(R.id.btn6).setOnClickListener(this::onNumberClick);
        findViewById(R.id.btn7).setOnClickListener(this::onNumberClick);
        findViewById(R.id.btn8).setOnClickListener(this::onNumberClick);
        findViewById(R.id.btn9).setOnClickListener(this::onNumberClick);

        // Operation buttons
        findViewById(R.id.btnAdd).setOnClickListener(this::onOperationClick);
        findViewById(R.id.btnSub).setOnClickListener(this::onOperationClick);
```

```java
        findViewById(R.id.btnMul).setOnClickListener(this::onOperationClick);
        findViewById(R.id.btnDiv).setOnClickListener(this::onOperationClick);

        // Scientific buttons
        findViewById(R.id.btnSin).setOnClickListener(this::onScientificOperationClick);
        findViewById(R.id.btnCos).setOnClickListener(this::onScientificOperationClick);
        findViewById(R.id.btnTan).setOnClickListener(this::onScientificOperationClick);
        findViewById(R.id.btnLog).setOnClickListener(this::onScientificOperationClick);

        // Other buttons
        findViewById(R.id.btnDot).setOnClickListener(this::onDotClick);
        findViewById(R.id.btnEqual).setOnClickListener(this::onEqualClick);
        findViewById(R.id.btnClear).setOnClickListener(v -> {
            input = "";
            display.setText("0");
        });
    }

    private void onNumberClick(View view) {
        if (isNewOp) {
            input = "";
            isNewOp = false;
        }
        Button button = (Button) view;
        input += button.getText().toString();
        display.setText(input);
    }

    private void onOperationClick(View view) {
        Button button = (Button) view;
        input += " " + button.getText().toString() + " ";
        display.setText(input);
    }

    private void onScientificOperationClick(View view) {
        Button button = (Button) view;
        String op = button.getText().toString();
        double result = 0;
        double value = Double.parseDouble(input);

        switch (op) {
            case "sin":
                result = Math.sin(Math.toRadians(value));
                break;
            case "cos":
                result = Math.cos(Math.toRadians(value));
                break;
            case "tan":
                result = Math.tan(Math.toRadians(value));
                break;
            case "log":
```

```java
                result = Math.log10(value);
                break;
        }

        display.setText(String.valueOf(result));
        input = String.valueOf(result);
        isNewOp = true;
    }

    private void onDotClick(View view) {
        if (!input.contains(".")) {
            input += ".";
            display.setText(input);
        }
    }

    private void onEqualClick(View view) {
        String[] tokens = input.split(" ");
        if (tokens.length < 3) return;

        double a = Double.parseDouble(tokens[0]);
        double b = Double.parseDouble(tokens[2]);
        String op = tokens[1];

        double result = 0;
        switch (op) {
            case "+":
                result = a + b;
                break;
            case "-":
                result = a - b;
                break;
            case "*":
                result = a * b;
                break;
            case "/":
                result = a / b;
                break;
        }

        display.setText(String.valueOf(result));
        input = String.valueOf(result);
        isNewOp = true;
    }
}
```

OUTPUT: