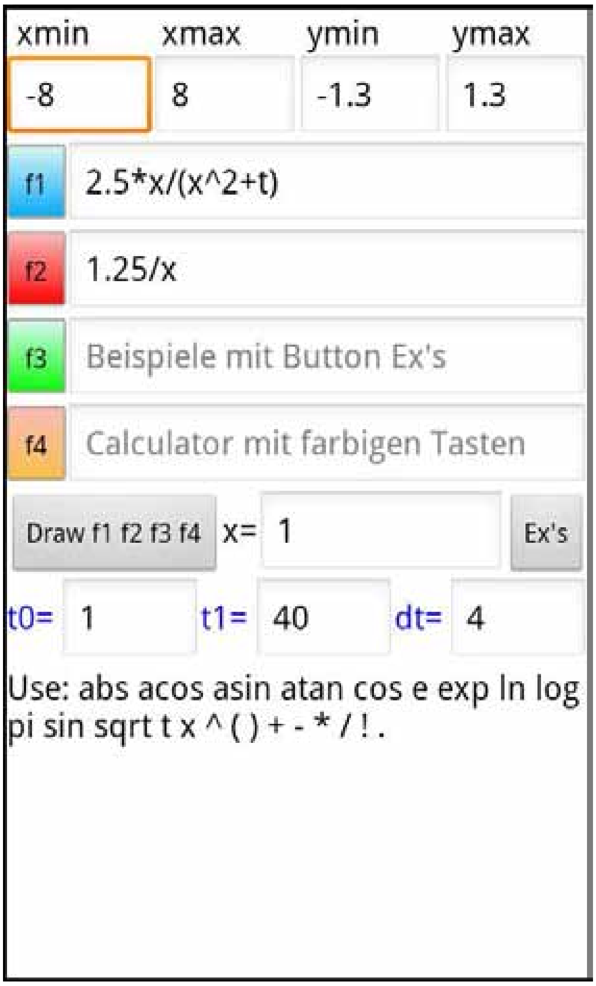
Graphischer Taschenrechner

Platform: Android 2.3.3 Applikation (Package Index (API) 10 oder höher; Android 4.0.3 hat API 15)

Getestet auf Samsung Galaxy S2, HTC Desire und HTC One X



xmin	xmax	ymin	ymax
-8	8	-1.3	1.3

f1 2.5*x/(x^2+t)

f2 1.25/x

f3 Beispiele mit Button Ex's

f4 Calculator mit farbigen Tasten

Draw f1 f2 f3 f4 x= 1 Ex's

t0= 1 t1= 40 dt= 4

Use: abs acos asin atan cos e exp ln log pi sin sqrt t x ^ ( ) + - * / ! .

Bild 1: Eingabefenster

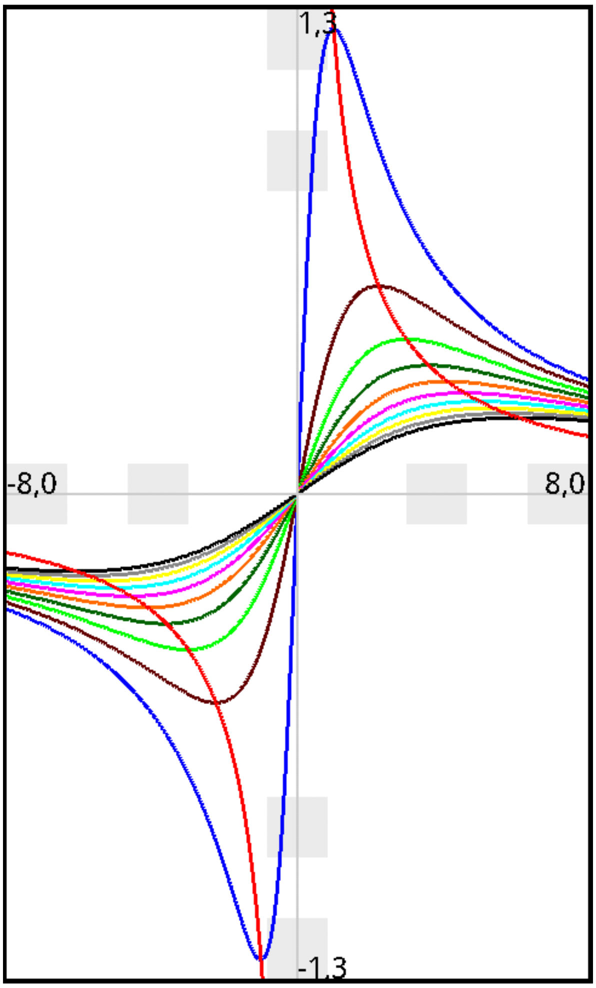


Bild 2: Graphisches Ausgabefenster

Die erste Eingabezeile dient der Bemaßung. Im Beispiel von Bild 1 geht die x-Achse von -8 bis 8 und die y-Achse von -1.3 bis 1.3. Im Ausgabefenster erscheinen diese Zahlen ebenfalls. Gibt man nichts an, wird automatisch die x-Achse von -5 bis 5 und die y-Achse von -20 bis 20 bemaßt.

Die vier nächsten Eingabezeilen nehmen diejenigen Funktionen auf, die gezeichnet werden sollen. Der Button Draw f1 f2 f3 f4 führt zum Ausgabefenster (Bild 2).

Die farbigen Funktionsbutton f1 f2 f3 f4 sind der Taschenrechner (TR). Sie starten die Berechnung des betreffenden Funktionswertes an der Stelle x. Gibt man im Eingabefeld für x nichts an, wird automatisch x=1 gesetzt.

Die blaue Funktion spielt eine Sonderrolle. Mit ihr können Parameterfunktionen (Scharen von Funktionen) dargestellt werden wie es das Bild 2 zeigt. Dabei muss der Parameter stets t sein.

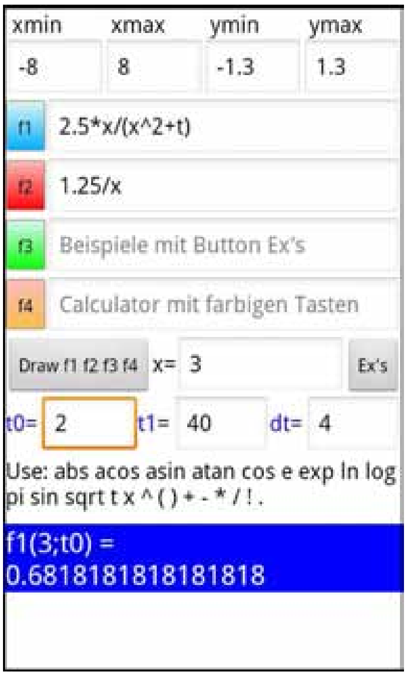
Das Beispiel von Bild 1 t0= 1 t1= 40 dt= 4 besagt, dass der Parameter die Werte t=1, t=5, t=9, t=13, t=17, t=21, t=25, t=29, t=33, t=37 annimmt. Der Parameter t wird von t=t0 =1 aus mit der Schrittweite dt=4 erhöht und kann höchstens den Wert t=t1=40 erreichen; t=37 + dt wäre aber 41, weshalb t=37 in diesem Fall der höchste Wert ist.

Der TR berechnet im Falle des blauen Buttons jedoch immer den Funktionswert zum Parameter t=t0; wird nichts für t0 angegeben, nimmt der TR immer den Wert t=1.

Für xmin, xmax, ymin, ymax, t0, t1, dt sind nur reelle Zahlen erlaubt.

Die Applikation (App) enthält einige Beispiele, die über den Button Ex's aufgerufen werden können.

Die Funktionsvariable muss immer x sein und der Parameter t kann nur in Zusammenhang mit der blauen Funktion **f1(x,t)** genutzt werden. Möchte man **f1(x)** zeichnen oder berechnen setzt man t0=t1=dt=1, oder lässt t0 und t1 leer.



xmin	xmax	ymin	ymax
-8	8	-1.3	1.3

f1 2.5*x/(x^2+t)

f2 1.25/x

f3 Beispiele mit Button Ex's

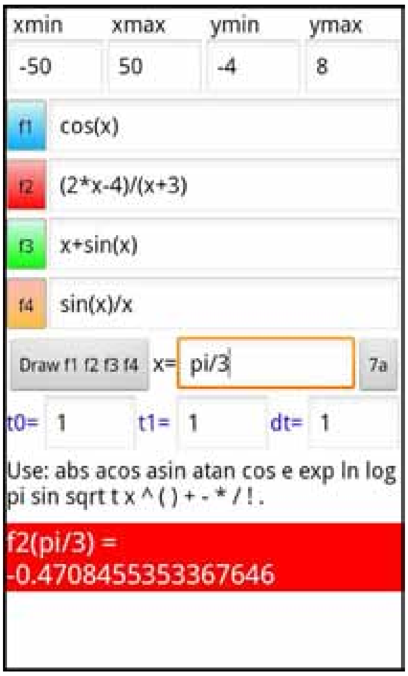
f4 Calculator mit farbigen Tasten

Draw f1 f2 f3 f4 x= 3 Ex's

t0= 2 t1= 40 dt= 4

Use: abs acos asin atan cos e exp ln log pi sin sqrt t x ^ ( ) + - * / ! .

f1(3;t0) =
0.6818181818181818



xmin	xmax	ymin	ymax
-50	50	-4	8

f1 cos(x)

f2 (2*x-4)/(x+3)

f3 x+sin(x)

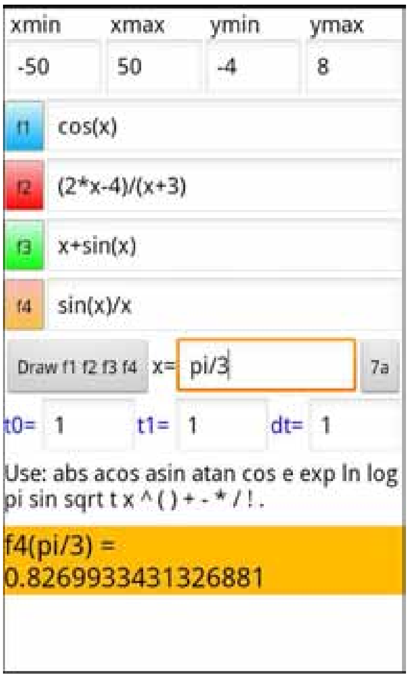
f4 sin(x)/x

Draw f1 f2 f3 f4 x= pi/3 7a

t0= 1 t1= 1 dt= 1

Use: abs acos asin atan cos e exp ln log pi sin sqrt t x ^ ( ) + - * / ! .

f2(pi/3) =
-0.4708455353367646



xmin	xmax	ymin	ymax
-50	50	-4	8

f1 cos(x)

f2 (2*x-4)/(x+3)

f3 x+sin(x)

f4 sin(x)/x

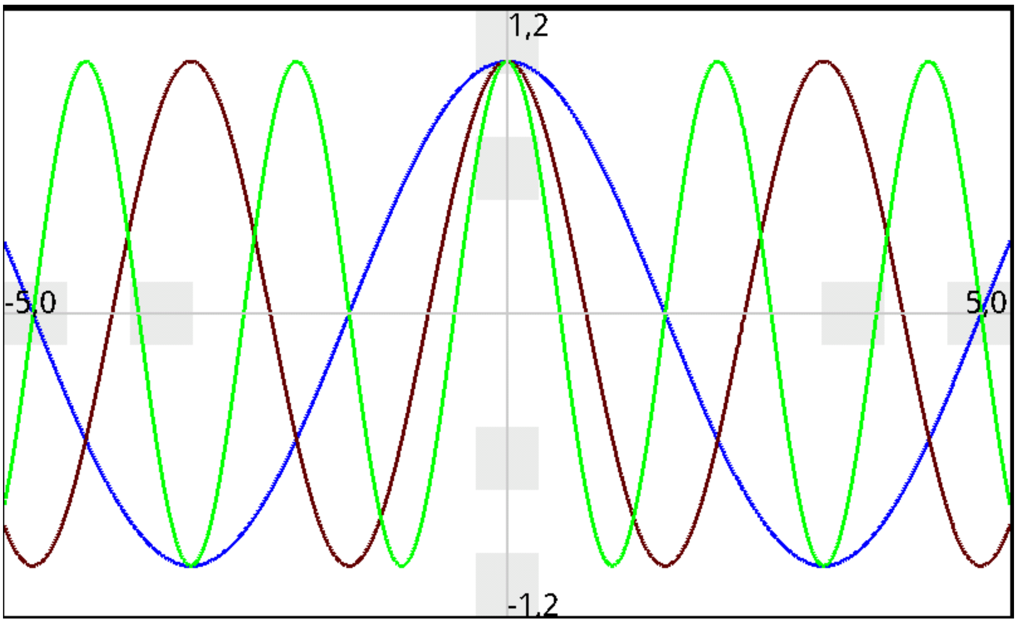
Draw f1 f2 f3 f4 x= pi/3 7a

t0= 1 t1= 1 dt= 1

Use: abs acos asin atan cos e exp ln log pi sin sqrt t x ^ ( ) + - * / ! .

f4(pi/3) =
0.8269933431326881

Das Ausgabefenster (Bild 2) enthält eine Zoom-Funktion. Dazu berührt man mit dem Finger die grauen Quadrate. Die vier äußeren sind **Zoom-Out** und die vier inneren **Zoom-In**.

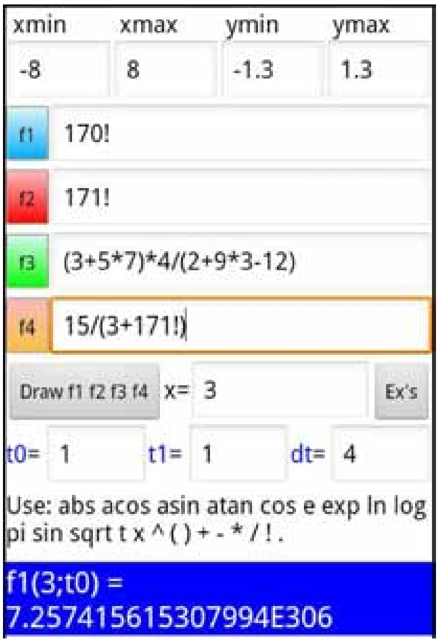


Querformat (Landscape)

Nur das graphische Ausgabefenster (Bild 2) lässt sich drehen: Portrait or Landscape.

Die Funktionseingabe mit dem TR hat stets die Portait-Orintierung.

Natürlich lässt sich mit dem TR auch normal ohne x und t rechnen, wie die nächsten Bilder zeigen:



xmin	xmax	ymin	ymax
-8	8	-1.3	1.3

f1 170!

f2 171!

f3 (3+5*7)*4/(2+9*3-12)

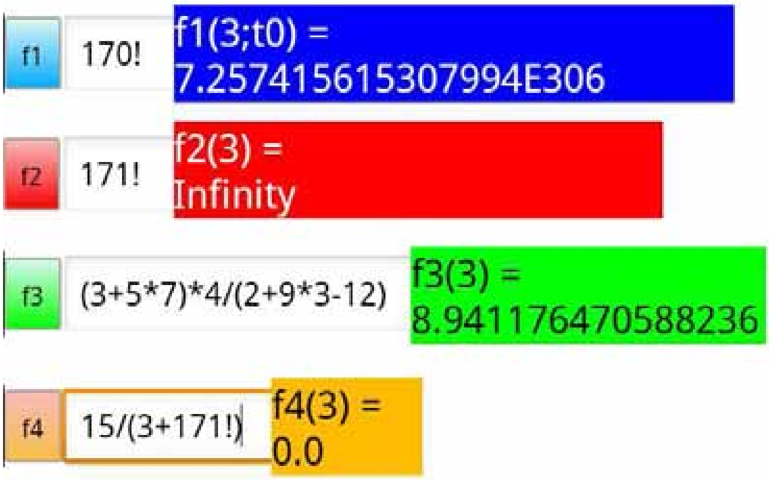
f4 15/(3+171!)

Draw f1 f2 f3 f4 x= 3 Ex's

t0= 1 t1= 1 dt= 4

Use: abs acos asin atan cos e exp ln log pi sin sqrt t x ^ ( ) + - * / ! .

f1(3;t0) =
7.257415615307994E306



f1 170! f1(3;t0) =
7.257415615307994E306

f2 171! f2(3) =
Infinity

f3 (3+5*7)*4/(2+9*3-12) f3(3) =
8.941176470588236

f4 15/(3+171!) f4(3) =
0.0

Wegen $f_2 = \infty$ *muss* $f_4 = 0$ *sein.*

Zum programmieren des graphischen TR benötigt man die Programme *Eclipse* , *Java* und das *Android-SDK* .

Nachfolgend ist der Quelltext aufgelistet:

```java
package der.die.das;

public class Constant extends Node_0{
  double result=0;
  int i, n=1;
    String str="";
    public Constant()
    {
        while("0123456789.!".indexOf(top())>-1)
        {
            str = str + deltop();
        }
        if(str.length()>0) {
         if(str.charAt(str.length()-1)=='!'){
           str=str.substring(0, str.length()-1);
           n = Integer.parseInt(str);
           result = 1;
           for(i=1; i<=n; i++) result *= i;
         } else result=Double.parseDouble(str);
        }
    }
    double value_of_math_expr(double x, double t)
    {
        return result;
    }
}


package der.die.das;

public class Expression extends Node_0{
  Node_0 sub = null;
  boolean factorial = false;
    public Expression()
    {
        if(top() =='('){
         deltop();/*remove (*/
         sub = new Term();
         deltop();/*we expect a bracket ) and remove it*/
         if(top() =='!'){
           deltop();/*remove !*/
           factorial = true;
         }
        }
        else if (Character.isLetter(top())) sub = new Function();
//function as variable
        else sub = new Constant();
    }

    int factorial (int num)
    {
    int result=1;
    for (int i=1; i<=num; ++i)
    result=result*=i;
    return result;
    }

    double value_of_math_expr(double x, double t)
    {
        if(factorial){
         return factorial((int)sub.value_of_math_expr(x, t));
        } else return sub.value_of_math_expr(x, t);
    }
}


package der.die.das;

public class Factor extends Node_0{
  Node_0 sub = null;
  Node_0 exp = null;
    boolean divisor = false;
    Factor factor  = null;
    public Factor()
    {
       sub = new Expression();
       if(top()=='^'){ deltop(); exp = new Expression();}
       if(top()=='*'){ deltop(); factor = new Factor();}
       else if(top()=='/'){ deltop(); factor = new Factor();
factor.divisor=true;}
    }
    double value_of_math_expr(double x, double t)
    {
        double y = sub.value_of_math_expr(x, t);
        if(exp!=null) y = Math.pow(y,exp.value_of_math_expr(x, t));
        if (divisor) y=1/y;
        if (factor!=null) return y*factor.value_of_math_expr(x, t);
        else return y;
    }

}


package der.die.das;

public class Function extends Node_0{
  String fct = "";
  Node_0 expr = null;
    int n = 0;
    public Function()
    {
     while(Character.isLetter(top())) fct += deltop();
    fct = fct.toLowerCase();
    if(fct.equals("x"))     {n=0;}
    else if(fct.equals("sin"))  {n=1;  expr = new Expression();}
    else if(fct.equals("cos"))  {n=2;  expr = new Expression();}
    else if(fct.equals("tan"))  {n=3;  expr = new Expression();}
    else if(fct.equals("asin")) {n=4;  expr = new Expression();}
    else if(fct.equals("acos")) {n=5;  expr = new Expression();}
    else if(fct.equals("atan")) {n=6;  expr = new Expression();}
    else if(fct.equals("exp"))  {n=7;  expr = new Expression();}
    else if(fct.equals("ln"))   {n=8;  expr = new Expression();}
    else if(fct.equals("sqrt")) {n=9;  expr = new Expression();}
    else if(fct.equals("pi"))   {n=10; expr = new Expression();}
    else if(fct.equals("t"))    {n=11; expr = new Expression();}
    else if(fct.equals("abs"))  {n=12; expr = new Expression();}
    else if(fct.equals("log"))  {n=13; expr = new Expression();}
    else if(fct.equals("e"))    {n=14; expr = new Expression();}
    else {;}
    }

    double value_of_math_expr(double x, double t)
    {
             if(n==0)  return x;
        else if(n==1)  return Math.sin(expr.value_of_math_expr(x,
t));
        else if(n==2)  return Math.cos(expr.value_of_math_expr(x,
t));
        else if(n==3)  return Math.tan(expr.value_of_math_expr(x,
t));
```

```
        else if(n==4)  return Math.asin(expr.value_of_math_expr(x, 
t));
        else if(n==5)  return Math.acos(expr.value_of_math_expr(x, 
t));
        else if(n==6)  return Math.atan(expr.value_of_math_expr(x, 
t));
        else if(n==7)  return Math.exp(expr.value_of_math_expr(x, 
t));
        else if(n==8)  return 
Math.log(expr.value_of_math_expr(Math.max(0.00000001, x), t));
        else if(n==9)  return 
Math.sqrt(expr.value_of_math_expr(Math.max(0, x), t));
        else if(n==10) return Math.PI;
        else if(n==11) return t;
        else if(n==12) return Math.abs(expr.value_of_math_expr(x, 
t));
        else if(n==13) return Math.log10(expr.value_of_math_expr(x, 
t));
        else if(n==14) return Math.E;
        else return 0.0;
    }
}


package der.die.das;

public abstract class Node_0 {
  static String str_of_math_expr;

  public Node_0(){;}
  public Node_0(String math_expr)
    {
      str_of_math_expr = math_expr;
    }
    char top()//liefert erstes Zeichen s=="abcdefg" --> a
    {
        if(str_of_math_expr.length()>0 ) return 
str_of_math_expr.charAt(0);
        else return ' ';
    }
    char deltop()//weg mit s.charAt(0)
    {
        char c = top();
        if(str_of_math_expr.length()>0) str_of_math_expr = 
str_of_math_expr.substring(1);
        //"abcdefg" --> "bcdefg"
        return c;
    }
    abstract double value_of_math_expr(double x, double t);
}

package der.die.das;

public class Summand extends Node_0{
  Factor factor = null;
    boolean negative = false;
    Summand sum = null;
    public Summand()
    {
        factor=new Factor();
        if(top()=='+') {deltop(); sum = new Summand();}
        else if(top()=='-'){deltop(); sum = new Summand();
sum.negative=true;}
    }
    double value_of_math_expr(double x, double t)
    {
        double y = 0;
        y=factor.value_of_math_expr(x, t);
        if(negative) y = -y;
        if(sum!=null){ y = y + sum.value_of_math_expr(x, t); }
        return y;
    }
}


package der.die.das;

public class Term extends Node_0{
  Summand sum = null;
    public Term(String math_expr){
        super(math_expr);
        parse();
    }
    public Term(){
      super();
      parse();
    }
    void parse()
    {
        boolean negative=false;
        if(top()=='-') {deltop();negative=true;}
        else if(top()=='+') deltop();
        sum = new Summand();
        sum.negative=negative;
    }
    double value_of_math_expr(double x, double t)
    {
        return sum.value_of_math_expr(x, t);
    }
}


package der.die.das;

import android.app.Activity;
import android.os.Bundle;
import android.view.Window;
import android.view.WindowManager;

public class Win2 extends Activity{
  Win2View drawView;
  /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);

//setRequestedOrientation(ActivityInfo.SCREEN_ORIENTATION_PORTRAIT)
;

getWindow().setFlags(WindowManager.LayoutParams.FLAG_FULLSCREEN,
WindowManager.LayoutParams.FLAG_FULLSCREEN);
        requestWindowFeature(Window.FEATURE_NO_TITLE);
        String[] trans = new String[11];
        trans[0] = getIntent().getStringExtra("xmin").toString();
        trans[1] = getIntent().getStringExtra("xmax").toString();
        trans[2] = getIntent().getStringExtra("ymin").toString();
        trans[3] = getIntent().getStringExtra("ymax").toString();
        if(trans[0].isEmpty()) trans[0] = "-5";
        if(trans[1].isEmpty()) trans[1] = "5";
        if(trans[2].isEmpty()) trans[2] = "-20";
        if(trans[3].isEmpty()) trans[3] = "20";
        trans[4] =
getIntent().getStringExtra("f1_of_x").toString();
        trans[5] =
getIntent().getStringExtra("f2_of_x").toString();
        trans[6] =
getIntent().getStringExtra("f3_of_x").toString();
        trans[7] =
getIntent().getStringExtra("f4_of_x").toString();
```

```
        trans[8] = getIntent().getStringExtra("tmin").toString();
        trans[9] = getIntent().getStringExtra("tmax").toString();
        trans[10] = getIntent().getStringExtra("dt").toString();
        if(trans[8].isEmpty()) trans[8] = "1";
        if(trans[9].isEmpty()) trans[9] = "1";
        if(trans[10].isEmpty()) trans[10] = "1";
        drawView = new Win2View(this, trans);
        setContentView(drawView);
        drawView.requestFocus();
    }
}


package der.die.das;

import java.text.DecimalFormat;

import android.content.Context;
import android.graphics.Bitmap;
import android.graphics.Canvas;
import android.graphics.Color;
import android.graphics.Paint;
import android.view.MotionEvent;
import android.view.View;
import android.view.View.OnTouchListener;

public class Win2View extends View implements OnTouchListener {
  boolean isInitialized;
  Paint paint = new Paint();
  Bitmap b_cr;
  Canvas canvas;
  double xmin, xmax, ymin, ymax, tmin, tmax, dt;
    double xStreckfaktor, yStreckfaktor;
    String str_f1, str_f2, str_f3, str_f4;
    int screen_w, screen_h;

  public Win2View(Context context, String[] ts) {
    super(context);
    setFocusable(true);
    setFocusableInTouchMode(true);
    this.setOnTouchListener(this);
        str_f1 = ts[4];
        str_f2 = ts[5];
        str_f3 = ts[6];
        str_f4 = ts[7];
        xmax = Double.valueOf(ts[1]);
        xmin = Double.valueOf(ts[0]);
        ymax = Double.valueOf(ts[3]);
        ymin = Double.valueOf(ts[2]);
        tmin = Double.valueOf(ts[8]);
        tmax = Double.valueOf(ts[9]);
        dt = Double.valueOf(ts[10]);
    isInitialized = false;
  }

  private void init() {
    b_cr = Bitmap.createBitmap(getWidth(), getHeight(),
Bitmap.Config.ARGB_8888);
    canvas = new Canvas(b_cr);
    canvas.drawColor(Color.WHITE);
    isInitialized = true;
    screen_w = canvas.getWidth();
    screen_h = canvas.getHeight();
    xStreckfaktor = canvas.getWidth() / (xmax - xmin);
        yStreckfaktor = canvas.getHeight() / (ymax - ymin);
        paint.setColor(Color.rgb(235, 235, 235));
      canvas.drawRect(screen_w/2-25, 0, screen_w/2+25, 50, paint);
      canvas.drawRect(screen_w/2-25, 100, screen_w/2+25, 150,
paint);
      canvas.drawRect(screen_w/2-25, screen_h-150, screen_w/2+25,
screen_h-100, paint);
      canvas.drawRect(screen_w/2-25, screen_h-50, screen_w/2+25,
screen_h, paint);
      canvas.drawRect(0, screen_h/2-25, 50, screen_h/2+25, paint);
      canvas.drawRect(100, screen_h/2-25, 150, screen_h/2+25,
paint);
      canvas.drawRect(screen_w-150, screen_h/2-25, screen_w-100,
screen_h/2+25, paint);
      canvas.drawRect(screen_w-50, screen_h/2-25, screen_w,
screen_h/2+25, paint);
        paint.setStrokeWidth(3);
        if(!str_f1.isEmpty()) ZeichneFktSchar(str_f1);
        if(!str_f2.isEmpty()) ZeichneFkt(str_f2, 2);
        if(!str_f3.isEmpty()) ZeichneFkt(str_f3, 3);
        if(!str_f4.isEmpty()) ZeichneFkt(str_f4, 4);
        coord_sys();
  }

  @Override
  public void onDraw(Canvas canvas) {
    init();
        canvas.drawBitmap(b_cr, 0, 0, paint);
  }

  public boolean onTouch(View view, MotionEvent me) {
    //canvas.drawCircle(me.getX(), me.getY(), 10, paint);
    final int action = me.getAction();
        switch (action) {
        case MotionEvent.ACTION_DOWN:
            break;
        case MotionEvent.ACTION_MOVE:
            break;
        case MotionEvent.ACTION_UP:
            if(((screen_w/2-25)<me.getX()) &
(me.getX()<(screen_w/2+25))){
             if((0<me.getY()) & (me.getY()<50)) ymax = 1.5*ymax;
             else if((100<me.getY()) & (me.getY()<150)) ymax =
0.5*ymax;
             else if(((screen_h-150)<me.getY()) &
(me.getY()<(screen_h-100))) ymin = 0.5*ymin;
             else if(((screen_h-50)<me.getY()) &
(me.getY()<screen_h)) ymin = 1.5*ymin;
            }
            if(((screen_h/2-25)<me.getY()) &
(me.getY()<(screen_h/2+25))){
             if((0<me.getX()) & (me.getX()<50)) xmin = 1.5*xmin;
             else if((100<me.getX()) & (me.getX()<150)) xmin =
0.5*xmin;
             else if(((screen_w-150)<me.getX()) &
(me.getX()<(screen_w-100))) xmax = 0.5*xmax;
             else if(((screen_w-50)<me.getX()) &
(me.getX()<screen_w)) xmax = 1.5*xmax;
            }
            invalidate();//calls onDraw(...
            break;
        }
    return true;
  }

  public int xX(double x) {
        return (int)Math.round(xStreckfaktor * (x - xmin));
    }

    public int yY(double y) {
        return (int)Math.round(yStreckfaktor * (ymax - y));
    }

    public void ZeichneFkt(String mstr, int i)
    {
        double x, dx;
        int xvon, yvon, xbis, ybis, h;
        Term fct=new Term(mstr);
        double y, y1;
        boolean draw = true;
        h = canvas.getHeight();
        if(i==1) paint.setColor(Color.BLUE);
        else if(i==2) paint.setColor(Color.RED);
        else if(i==3) paint.setColor(Color.GREEN);
        else if(i==4) paint.setColor(Color.rgb(255, 100, 0));
        else if(i==5) paint.setColor(Color.rgb(0, 100, 0));
        else if(i==6) paint.setColor(Color.MAGENTA);
        else if(i==7) paint.setColor(Color.CYAN);
        else if(i==8) paint.setColor(Color.YELLOW);
        else if(i==9) paint.setColor(Color.GRAY);
        else paint.setColor(Color.BLACK);
        dx = (xmax - xmin) / canvas.getWidth()/2;
        x = xmin; y=fct.value_of_math_expr(x, 1);
        xvon = xX(x); yvon = yY(y);
        x += dx;
        while (x <= xmax)
        {
         y1=fct.value_of_math_expr(x, 1);
         if(y1 < ymin) y1 = 1.1*ymin;
         if(ymax<y1) y1 = 1.1*ymax;
         xbis = xX(x); ybis = yY(y1);
         if(((y<ymin)&(ymax<y1))||((y1<ymin)&(ymax<y))) draw = 
false;
         if(((y<ymin)&(y1<ymin))||((ymax<y1)&(ymax<y))) draw = 
false;
         if(draw) canvas.drawLine(xvon, yvon, xbis, ybis, paint);
            x += dx; xvon = xbis; yvon = ybis; y = y1; draw = true;
        }
    }

    public void ZeichneFktSchar(String mstr)
    {
        double x, dx;
        int xvon, yvon, xbis, ybis, h, i=0;
        Term fct=new Term(mstr);
        double y, y1, t;
        boolean draw = true;
        t = tmin;
        h = canvas.getHeight();
        while (t <= tmax){
```

```
        if(i==0) paint.setColor(Color.BLUE);
        else if(i==1) paint.setColor(Color.rgb(100, 0, 0));
        else if(i==2) paint.setColor(Color.GREEN);
        else if(i==3) paint.setColor(Color.rgb(0, 100, 0));
        else if(i==4) paint.setColor(Color.rgb(255, 105, 0));
        else if(i==5) paint.setColor(Color.MAGENTA);
        else if(i==6) paint.setColor(Color.CYAN);
        else if(i==7) paint.setColor(Color.YELLOW);
        else if(i==8) paint.setColor(Color.GRAY);
        else paint.setColor(Color.BLACK);
        dx = (xmax - xmin) / canvas.getWidth()/2;
        x = xmin; y=fct.value_of_math_expr(x, t);
        xvon = xX(x); yvon = yY(y);
        x += dx;
        while (x <= xmax)
        {
         y1=fct.value_of_math_expr(x, t);
         if(y1 < ymin) y1 = 1.1*ymin;
         if(ymax<y1) y1 = 1.1*ymax;
         xbis = xX(x); ybis = yY(y1);
         if(((y<ymin)&(ymax<y1))||((y1<ymin)&(ymax<y))) draw =
false;
         if(((y<ymin)&(y1<ymin))||((ymax<y1)&(ymax<y))) draw =
false;
         if(draw) canvas.drawLine(xvon, yvon, xbis, ybis, paint);
            x += dx; xvon = xbis; yvon = ybis; y = y1; draw = true;
        }
        t = t + dt; i=(i+1)%10;
        }
    }

    void coord_sys()
    {
     paint.setStrokeWidth(2);
     paint.setColor(Color.LTGRAY);
        canvas.drawLine(xX(xmin),yY(0),xX(xmax),yY(0),
paint);//x_achse
        canvas.drawLine(xX(0),yY(ymin),xX(0),yY(ymax),
paint);//y_achse
        DecimalFormat nf = new DecimalFormat("0.0");
        paint.setColor(Color.BLACK);
     paint.setTextSize(25);
     String txt = nf.format(xmax);
     canvas.drawText(txt, xX(xmax)-txt.length()*12, yY(0), paint);
     txt = nf.format(xmin);
     canvas.drawText(txt, xX(xmin), yY(0), paint);
```

```
      txt = nf.format(ymax);
      canvas.drawText(txt, xX(0), yY(ymax)+20, paint);
      txt = nf.format(ymin);
      canvas.drawText(txt, xX(0), yY(ymin), paint);
    }
}

package der.die.das;

import android.app.Activity;
import android.content.Intent;
import android.content.pm.ActivityInfo;
import android.os.Bundle;
import android.view.View;
import android.view.Window;
import android.view.WindowManager;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

public class Calc_1 extends Activity {
  String txt = "";
    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);

getWindow().setFlags(WindowManager.LayoutParams.FLAG_FULLSCREEN,
WindowManager.LayoutParams.FLAG_FULLSCREEN);
        requestWindowFeature(Window.FEATURE_NO_TITLE);

setRequestedOrientation(ActivityInfo.SCREEN_ORIENTATION_PORTRAIT);
        setContentView(R.layout.main);
      Button myB = (Button)findViewById(R.id.btn1_id);
      //myB.getBackground().setColorFilter(0xFF00FF00,
android.graphics.PorterDuff.Mode.MULTIPLY);
      //myB.setBackgroundColor(Color.CYAN); //schlecht
      final EditText ed_xmin = (EditText) findViewById(R.id.ed1_id);
      final EditText ed_xmax = (EditText) findViewById(R.id.ed2_id);
      final EditText ed_ymin = (EditText) findViewById(R.id.ed3_id);
      final EditText ed_ymax = (EditText) findViewById(R.id.ed4_id);
        final EditText ed_f1 = (EditText)
findViewById(R.id.ed5_id);
        final EditText ed_f2 = (EditText)
findViewById(R.id.ed6_id);
```

```
        final EditText ed_f3 = (EditText)
findViewById(R.id.ed7_id);
        final EditText ed_f4 = (EditText)
findViewById(R.id.ed8_id);
        final EditText ed_tmin = (EditText)
findViewById(R.id.ed9_id);
      final EditText ed_tmax = (EditText)
findViewById(R.id.ed10_id);
      final EditText ed_dt = (EditText) findViewById(R.id.ed11_id);
        myB.setOnClickListener(new View.OnClickListener() {
         public void onClick(View v0) {
           //Manifest.xml: <activity
android:name=".Win2"></activity>
           Intent it1 = new Intent(v0.getContext(), Win2.class);
           String str_xmin = ed_xmin.getText().toString();
           String str_xmax = ed_xmax.getText().toString();
           String str_ymin = ed_ymin.getText().toString();
           String str_ymax = ed_ymax.getText().toString();
           String str_f1  = ed_f1.getText().toString();
           String str_f2  = ed_f2.getText().toString();
           String str_f3  = ed_f3.getText().toString();
           String str_f4  = ed_f4.getText().toString();
           String str_tmin = ed_tmin.getText().toString();
           String str_tmax = ed_tmax.getText().toString();
           String str_dt = ed_dt.getText().toString();
           it1.putExtra("xmin", str_xmin);
           it1.putExtra("xmax", str_xmax);
           it1.putExtra("ymin", str_ymin);
           it1.putExtra("ymax", str_ymax);
           it1.putExtra("f1_of_x", str_f1);
           it1.putExtra("f2_of_x", str_f2);
           it1.putExtra("f3_of_x", str_f3);
           it1.putExtra("f4_of_x", str_f4);
           it1.putExtra("tmin", str_tmin);
           it1.putExtra("tmax", str_tmax);
           it1.putExtra("dt", str_dt);
           startActivityForResult(it1, 0);
         }
        });
    }

    public void btn_calc_f1_of_x(View v0){
      EditText ed_f1 = (EditText) findViewById(R.id.ed5_id);
      EditText ed_x = (EditText) findViewById(R.id.ed12_id);
      EditText ed_t0 = (EditText) findViewById(R.id.ed9_id);
      TextView v_fx = (TextView) findViewById(R.id.txt14_id);

      String str_f = ed_f1.getText().toString();
      String str_x  = ed_x.getText().toString();
      String str_t0  = ed_t0.getText().toString();
      Term tf, tx;
      double t0;
      if(!str_f.isEmpty()){
        tf=new Term(str_f);
        if(str_x.isEmpty()) str_x = "1"; tx=new Term(str_x);
          if(!str_t0.isEmpty()){t0 = Double.valueOf(str_t0);} else
{t0 = 1;}
        double x, y;
        x=tx.value_of_math_expr(1,1);
        y=tf.value_of_math_expr(x,t0);
        v_fx.setTextColor(0xffFFFFFF);
        v_fx.setBackgroundColor(0xff0000FF);//ff is transparence
        txt = "f1(" + str_x + ";t0) = " + "\n" + Double.toString(y);
        while(txt.length()<100) txt += " ";
        v_fx.setText(txt);
      }
    }

    public void btn_calc_f2_of_x(View v0){
      EditText ed_f = (EditText) findViewById(R.id.ed6_id);
      EditText ed_x = (EditText) findViewById(R.id.ed12_id);
      TextView v_fx = (TextView) findViewById(R.id.txt14_id);

      String str_f = ed_f.getText().toString();
      String str_x  = ed_x.getText().toString();
      Term tf, tx;
      if(!str_f.isEmpty()){
        tf=new Term(str_f);
        if(str_x.isEmpty()) str_x = "1"; tx=new Term(str_x);
        double x, y;
        x=tx.value_of_math_expr(1,1);
        y=tf.value_of_math_expr(x,1);
        v_fx.setTextColor(0xffFFFFFF);
        v_fx.setBackgroundColor(0xffFF0000);//ff is transparence
        txt = "f2(" + str_x + ") = " + "\n" + Double.toString(y);
        while(txt.length()<100) txt += " ";
        v_fx.setText(txt);
      }
    }

    public void btn_calc_f3_of_x(View v0){
```

```
  EditText ed_f = (EditText) findViewById(R.id.ed7_id);
  EditText ed_x = (EditText) findViewById(R.id.ed12_id);
  TextView v_fx = (TextView) findViewById(R.id.txt14_id);

  String str_f = ed_f.getText().toString();
  String str_x  = ed_x.getText().toString();
  Term tf, tx;
  if(!str_f.isEmpty()){
    tf=new Term(str_f);
    if(str_x.isEmpty()) str_x = "1"; tx=new Term(str_x);
    double x, y;
      x=tx.value_of_math_expr(1,1);
    y=tf.value_of_math_expr(x,1);
    v_fx.setTextColor(0xff000000);
    v_fx.setBackgroundColor(0xff00FF00);//ff is transparence
    txt = "f3(" + str_x + ") = " + "\n" + Double.toString(y);
    while(txt.length()<100) txt += " ";
    v_fx.setText(txt);
  }
}

public void btn_calc_f4_of_x(View v0){
  EditText ed_f = (EditText) findViewById(R.id.ed8_id);
  EditText ed_x = (EditText) findViewById(R.id.ed12_id);
  TextView v_fx = (TextView) findViewById(R.id.txt14_id);

  String str_f = ed_f.getText().toString();
  String str_x  = ed_x.getText().toString();
  Term tf, tx;
  if(!str_f.isEmpty()){
    tf=new Term(str_f);
    if(str_x.isEmpty()) str_x = "1"; tx=new Term(str_x);
    double x, y;
    x=tx.value_of_math_expr(1,1);
    y=tf.value_of_math_expr(x,1);
    v_fx.setTextColor(0xff000000);
    v_fx.setBackgroundColor(0xffFFBB00);//ff is transparence
    txt = "f4(" + str_x + ") = " + "\n" + Double.toString(y);
    while(txt.length()<100) txt += " ";
    v_fx.setText(txt);
  }
}

public void btn_examples(View v0){
  EditText ed_xmin = (EditText) findViewById(R.id.ed1_id);
  EditText ed_xmax = (EditText) findViewById(R.id.ed2_id);
  EditText ed_ymin = (EditText) findViewById(R.id.ed3_id);
  EditText ed_ymax = (EditText) findViewById(R.id.ed4_id);
     EditText ed_f1 = (EditText) findViewById(R.id.ed5_id);
     EditText ed_f2 = (EditText) findViewById(R.id.ed6_id);
     EditText ed_f3 = (EditText) findViewById(R.id.ed7_id);
     EditText ed_f4 = (EditText) findViewById(R.id.ed8_id);
     EditText ed_tmin = (EditText) findViewById(R.id.ed9_id);
  EditText ed_tmax = (EditText) findViewById(R.id.ed10_id);
  EditText ed_dt = (EditText) findViewById(R.id.ed11_id);
     Button myB = (Button)findViewById(R.id.btn3_id);
     String txt = myB.getText().toString();
     if(txt.equals("Ex's") || txt.equals("21")){
      myB.setText("1");
      ed_xmin.setText("-50");
      ed_xmax.setText("50");
      ed_ymin.setText("-4");
      ed_ymax.setText("8");
      ed_f1.setText("");
      ed_f2.setText("(2*x-4)/(x+3)");
      ed_f3.setText("2");
      ed_f4.setText("");
      ed_tmin.setText("1");
      ed_tmax.setText("1");
      ed_dt.setText("1");
     }
     if(txt.equals("1")){//----------------------
      myB.setText("2");
      ed_xmin.setText("-30");
      ed_xmax.setText("30");
      ed_ymin.setText("-3");
      ed_ymax.setText("1.5");
      ed_f1.setText("");
      ed_f2.setText("(4-x)/(x+1)");
      ed_f3.setText("-1");
      ed_f4.setText("");
     }
     if(txt.equals("2")){//----------------------
      myB.setText("3");
      ed_xmin.setText("-100");
      ed_xmax.setText("100");
      ed_ymin.setText("-0.4");
      ed_ymax.setText("3");
      ed_f1.setText("");
      ed_f2.setText("(x^2+4*x+4)/(x^2-4*x+4)");
      ed_f3.setText("1");
      ed_f4.setText("");
```

```
}
if(txt.equals("3")){//----------------------
 myB.setText("4");
 ed_xmin.setText("-14");
 ed_xmax.setText("10");
 ed_ymin.setText("-90");
 ed_ymax.setText("75");
 ed_f1.setText("");
 ed_f2.setText("(2*x^2-4*x+2)/(x^2+4*x+3)");
 ed_f3.setText("2");
 ed_f4.setText("");
}
if(txt.equals("4")){//----------------------
 myB.setText("5");
 ed_xmin.setText("-35");
 ed_xmax.setText("30");
 ed_ymin.setText("-75");
 ed_ymax.setText("50");
 ed_f1.setText("");
 ed_f2.setText("x^2/(x-3)");
 ed_f3.setText("x+3");
 ed_f4.setText("");
}
if(txt.equals("5")){//----------------------
 myB.setText("6");
 ed_xmin.setText("-17");
 ed_xmax.setText("30");
 ed_ymin.setText("-27");
 ed_ymax.setText("17");
 ed_f1.setText("");
 ed_f2.setText("(-x^2+1)/(x+2)");
 ed_f3.setText("-x+2");
 ed_f4.setText("");
}
if(txt.equals("6")){
 myB.setText("7");
 ed_xmin.setText("-7");
 ed_xmax.setText("9");
 ed_ymin.setText("-8");
 ed_ymax.setText("7");
 ed_f1.setText("");
 ed_f2.setText("(x^2-2*x-3)/(2*x-2)");
 ed_f3.setText("x/2-1/2");
 ed_f4.setText("");
}
if(txt.equals("7")){
 myB.setText("8");
 ed_xmin.setText("-22");
 ed_xmax.setText("22");
 ed_ymin.setText("-25");
 ed_ymax.setText("17");
 ed_f1.setText("");
 ed_f2.setText("(x^3-2*x^2+x)/(x^2+2*x+1)");
 ed_f3.setText("x-4");
 ed_f4.setText("");
}
if(txt.equals("8")){//----------------------
 myB.setText("9");
 ed_xmin.setText("-2.5");
 ed_xmax.setText("2.5");
 ed_ymin.setText("-3");
 ed_ymax.setText("3");
 ed_f1.setText("");
 ed_f2.setText("(x^4+1)/(4*x)");
 ed_f3.setText("x^3/4");
 ed_f4.setText("");
}
if(txt.equals("9")){
 myB.setText("10");
 ed_xmin.setText("-5");
 ed_xmax.setText("5");
 ed_ymin.setText("-11");
 ed_ymax.setText("4");
 ed_f1.setText("");
 ed_f2.setText("(-x^4+4)/(2*x^2)");
 ed_f3.setText("-x^2/2");
 ed_f4.setText("");
}
if(txt.equals("10")){
 myB.setText("11");
 ed_xmin.setText("-10");
 ed_xmax.setText("10");
 ed_ymin.setText("-5");
 ed_ymax.setText("5");
 ed_f1.setText("");
 ed_f2.setText("(x^4-3*x^2-4)/(3*x^2)");
 ed_f3.setText("x^2/3-1");
 ed_f4.setText("");
}
if(txt.equals("11")){
 myB.setText("12");
 ed_xmin.setText("-4");
 ed_xmax.setText("4");
 ed_ymin.setText("-3.5");
 ed_ymax.setText("5");
 ed_f1.setText("");
 ed_f2.setText("(x^4-5*x^2+4)/(2*x^2+2)");
 ed_f3.setText("x^2/2-3");
 ed_f4.setText("");
}
if(txt.equals("12")){
 myB.setText("13");
 ed_xmin.setText("-5");
 ed_xmax.setText("5");
 ed_ymin.setText("-4");
 ed_ymax.setText("4");
 ed_f1.setText("1/(x-t)");
 ed_f2.setText("");
 ed_f3.setText("");
 ed_f4.setText("");
 ed_tmin.setText("-2");
 ed_tmax.setText("2");
 ed_dt.setText("0.5");
}
if(txt.equals("13")){
 myB.setText("14");
 ed_xmin.setText("-2.5");
 ed_xmax.setText("2.5");
 ed_ymin.setText("-13.5");
 ed_ymax.setText("13.5");
 ed_f1.setText("1/(x^2-t)");
 ed_f2.setText("");
 ed_f3.setText("");
 ed_f4.setText("");
 ed_tmin.setText("-0.2");
 ed_tmax.setText("5");
 ed_dt.setText("1");
}
if(txt.equals("14")){
 myB.setText("15");
 ed_xmin.setText("-5");
 ed_xmax.setText("5");
 ed_ymin.setText("-10");
 ed_ymax.setText("10");
 ed_f1.setText("(x-t)/x");
 ed_f2.setText("");
 ed_f3.setText("");
 ed_f4.setText("");
 ed_tmin.setText("1");
 ed_tmax.setText("10");
 ed_dt.setText("1");
}
if(txt.equals("15")){
 myB.setText("16");
 ed_xmin.setText("-6");
 ed_xmax.setText("6");
 ed_ymin.setText("-45");
 ed_ymax.setText("45");
 ed_f1.setText("(x+t)/(x^2-2*t*x+t^2)");
 ed_f2.setText("");
 ed_f3.setText("");
 ed_f4.setText("");
 ed_tmin.setText("-3.5");
 ed_tmax.setText("3.5");
 ed_dt.setText("2.3");
}
if(txt.equals("16")){
 myB.setText("17");
 ed_xmin.setText("-5");
 ed_xmax.setText("5");
 ed_ymin.setText("-45");
 ed_ymax.setText("45");
 ed_f1.setText("(x^2+2*t*x+t^2)/(t*x-t^2)");
 ed_f2.setText("");
 ed_f3.setText("");
 ed_f4.setText("");
 ed_tmin.setText("-2");
 ed_tmax.setText("2");
 ed_dt.setText("1.2");
}
if(txt.equals("17")){
 myB.setText("18");
 ed_xmin.setText("-6");
 ed_xmax.setText("6");
 ed_ymin.setText("-22");
 ed_ymax.setText("22");
 ed_f1.setText("(x^2-t^2+1)/(x-t)");
 ed_f2.setText("");
 ed_f3.setText("");
 ed_f4.setText("");
 ed_tmin.setText("-3.5");
 ed_tmax.setText("3.5");
 ed_dt.setText("2.3");
}
```

```
        if(txt.equals("18")){
         myB.setText("19");
         ed_xmin.setText("-6");
         ed_xmax.setText("6");
         ed_ymin.setText("-1.2");
         ed_ymax.setText("1.2");
         ed_f1.setText("x-x^3/3!+x^5/5!-x^7/7!+x^9/9!-
x^11/11!+x^13/13!-x^15/15!+x^17/17!-x^19/19!");
         ed_f2.setText("sin(x)+0.02");
         ed_f3.setText("");
         ed_f4.setText("");
         ed_tmin.setText("1");
         ed_tmax.setText("1");
         ed_dt.setText("1");
        }
        if(txt.equals("19")){
         myB.setText("20");
         ed_xmin.setText("-6");
         ed_xmax.setText("6");
         ed_ymin.setText("-1.2");
         ed_ymax.setText("1.2");
         ed_f1.setText("1-x^2/2!+x^4/4!-x^6/6!+x^8/8!-
x^10/10!+x^12/12!-x^14/14!+x^16/16!-x^18/18!");
         ed_f2.setText("cos(x)+0.02");
         ed_f3.setText("");
         ed_f4.setText("");
         ed_tmin.setText("1");
         ed_tmax.setText("1");
         ed_dt.setText("1");
        }
        if(txt.equals("20")){
         myB.setText("21");
         ed_xmin.setText("-5");
         ed_xmax.setText("5");
         ed_ymin.setText("-2");
         ed_ymax.setText("50");

  ed_f1.setText("1+x+x^2/2!+x^3/3!+x^4/4!+x^5/5!+x^6/6!+x^7/7!+x^8/8
!+x^9/9!+x^10/10!+x^11/11!+x^12/12!");
         ed_f2.setText("e^x+0.3");
         ed_f3.setText("");
         ed_f4.setText("");
         ed_tmin.setText("1");
         ed_tmax.setText("1");
         ed_dt.setText("1");
        }
```

```
    }
}
```

```xml
<?xml version="1.0" encoding="utf-8"?>
<selector
xmlns:android="http://schemas.android.com/apk/res/android">
    <item>
        <shape>
            <gradient
                android:endColor="@color/blue2"
                android:startColor="@color/blue25"
                android:angle="270" />
            <stroke
                android:width="1dp"
                android:color="@color/grey05" />
            <corners android:radius="1dp" />
            <padding
                android:top="12dp"
                android:bottom="10dp" />
        </shape>
    </item>
</selector>
```

```xml
<?xml version="1.0" encoding="utf-8"?>
<selector
xmlns:android="http://schemas.android.com/apk/res/android">
    <item>
        <shape>
            <gradient
                android:endColor="@color/read2"
                android:startColor="@color/read25"
                android:angle="270" />
            <stroke
                android:width="1dp"
                android:color="@color/grey05" />
            <corners android:radius="1dp" />
            <padding
                android:top="12dp"
                android:bottom="10dp" />
        </shape>
    </item>
</selector>
```

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

```
        <shape>
            <gradient
                android:endColor="@color/green2"
                android:startColor="@color/blue25"
                android:angle="270" />
            <stroke
                android:width="1dp"
                android:color="@color/grey05" />
            <corners android:radius="1dp" />
            <padding
                android:top="12dp"
                android:bottom="10dp" />
        </shape>
    </item>
</selector>

<?xml version="1.0" encoding="utf-8"?>
<selector
xmlns:android="http://schemas.android.com/apk/res/android">
    <item>
        <shape>
            <gradient
                android:endColor="@color/orange4"
                android:startColor="@color/read25"
                android:angle="270" />
            <stroke
                android:width="1dp"
                android:color="@color/grey05" />
            <corners android:radius="1dp" />
            <padding
                android:left="10dp"
                android:right="10dp"
                android:top="12dp"
                android:bottom="10dp" />
        </shape>
    </item>
</selector>

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/win1_id"
    android:layout_width="match_parent"
    android:layout_height="fill_parent"
    android:orientation="vertical"
android:background="@color/white1">
```

```
    <TableLayout
        android:id="@+id/tableLayout1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" >



        <TableRow
            android:id="@+id/tableRow1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content" >



            <TextView
                android:id="@+id/textView1"
                android:layout_width="0dp"
                android:layout_height="wrap_content"
                android:layout_marginLeft="5dp"
                android:layout_weight="1"
                android:text="xmin"

android:textAppearance="?android:attr/textAppearanceMedium"
                android:textColor="#000"/>


            <TextView
                android:id="@+id/textView2"
                android:layout_width="0dp"
                android:layout_height="wrap_content"
                android:layout_marginLeft="5dp"
                android:layout_weight="1"
                android:text="xmax"

android:textAppearance="?android:attr/textAppearanceMedium"
                android:textColor="#000"/>


            <TextView
                android:id="@+id/textView3"
                android:layout_width="0dp"
                android:layout_height="wrap_content"
                android:layout_marginLeft="5dp"
                android:layout_weight="1"
                android:text="ymin"
```

```
android:textAppearance="?android:attr/textAppearanceMedium"
                android:textColor="#000"/>


            <TextView
                android:id="@+id/textView4"
                android:layout_width="0dp"
                android:layout_height="wrap_content"
                android:layout_marginLeft="5dp"
                android:layout_weight="1"
                android:text="ymax"

android:textAppearance="?android:attr/textAppearanceMedium"
                android:textColor="#000"/>

        </TableRow>


        <TableRow
            android:id="@+id/tableRow2"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content" >



            <EditText
                android:id="@+id/ed1_id"
                android:layout_width="0dp"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:inputType="numberDecimal|numberSigned"
                android:scrollHorizontally="true" android:text="-
8">

                <requestFocus />
            </EditText>



            <EditText
                android:id="@+id/ed2_id"
                android:layout_width="0dp"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:inputType="numberDecimal|numberSigned"
                android:scrollHorizontally="true"
android:text="8"/>

            <EditText
                android:id="@+id/ed3_id"
                android:layout_width="0dp"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:inputType="numberDecimal|numberSigned"
                android:scrollHorizontally="true" android:text="-
1.3"/>

            <EditText
                android:id="@+id/ed4_id"
                android:layout_width="0dp"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:inputType="numberDecimal|numberSigned"
                android:scrollHorizontally="true"
android:text="1.3"/>
        </TableRow>

        <TableRow
            android:id="@+id/tableRow3"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content" >

            <Button
                android:id="@+id/btn6_id"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:onClick="btn_calc_f1_of_x"
                android:text="f1"
android:background="@drawable/bf1"/>


            <EditText
                android:id="@+id/ed5_id"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:hint="Scharparameter muss t sein"
                android:inputType="text"
                android:scrollHorizontally="true"
                android:text="2.5*x/(x^2+t)" />
        </TableRow>

        <TableRow
            android:id="@+id/tableRow4"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content" >

            <Button
                android:id="@+id/btn5_id"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:onClick="btn_calc_f2_of_x"
                android:text="f2"
android:background="@drawable/bf2"/>


            <EditText
                android:id="@+id/ed6_id"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:hint="Keine Fktenschar mit f2 f3 f4"
                android:inputType="text"
                android:scrollHorizontally="true"
                android:text="1.25/x" />

        </TableRow>

        <TableRow
            android:id="@+id/tableRow5"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content" >

            <Button
                android:id="@+id/btn4_id"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:onClick="btn_calc_f3_of_x"
                android:text="f3"
android:background="@drawable/bf3"/>


            <EditText
                android:id="@+id/ed7_id"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:hint="Beispiele mit Button Ex's"
                android:inputType="text"
                android:scrollHorizontally="true" />

        </TableRow>

        <TableRow
            android:id="@+id/tableRow6"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content" >

            <Button
                android:id="@+id/btn2_id"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:onClick="btn_calc_f4_of_x"
                android:text="f4"
android:background="@drawable/bf4"/>

            <EditText
                android:id="@+id/ed8_id"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:hint="Calculator mit farbigen Tasten"
                android:inputType="text"
                android:scrollHorizontally="true" />

        </TableRow>

   </TableLayout>

   <TableLayout
        android:id="@+id/tableLayout2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" >

        <TableRow
            android:id="@+id/tableRow7"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content" >

            <Button
           android:id="@+id/btn1_id"
           android:layout_width="wrap_content"
           android:layout_height="wrap_content"
           android:text="Draw f1 f2 f3 f4" />


            <TextView
                android:id="@+id/textView9"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:text="x="

android:textAppearance="?android:attr/textAppearanceMedium"
                android:textColor="#000"/>


            <EditText
                android:id="@+id/ed12_id"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:hint="pi/2"
                android:inputType="text"
                android:scrollHorizontally="true"
                android:text="1" />

            <Button
                android:id="@+id/btn3_id"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:onClick="btn_examples"
                android:text="Ex&apos;s" />

        </TableRow>

        <TableRow
            android:id="@+id/tableRow8"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content" >

            <TextView
                android:id="@+id/textView10"
                android:layout_width="0dp"
                android:layout_height="wrap_content"
                android:text="t0="
                android:layout_weight="0.5"

android:textAppearance="?android:attr/textAppearanceMedium"
```

```xml
                android:textColor="#00f"/>



            <EditText
                android:id="@+id/ed9_id"
                android:layout_width="0dp"
                android:layout_height="wrap_content"
                android:layout_marginLeft="-10dp"
                android:layout_weight="1"
                android:inputType="numberDecimal|numberSigned"
                android:scrollHorizontally="true"
android:text="1"/>

            <TextView
                android:id="@+id/textView11"
                android:layout_width="0dp"
                android:layout_height="wrap_content"
                android:text="t1="
                android:layout_weight="0.5"

android:textAppearance="?android:attr/textAppearanceMedium"
                android:textColor="#00f"/>



            <EditText
                android:id="@+id/ed10_id"
                android:layout_width="0dp"
                android:layout_height="wrap_content"
                android:layout_marginLeft="-10dp"
                android:layout_weight="1"
                android:inputType="numberDecimal|numberSigned"
                android:scrollHorizontally="true"
android:text="40"/>

            <TextView
                android:id="@+id/textView12"
                android:layout_width="0dp"
                android:layout_height="wrap_content"
                android:text="dt="
                android:layout_weight="0.5"

android:textAppearance="?android:attr/textAppearanceMedium"
                android:textColor="#00f"/>
            <EditText
                android:id="@+id/ed11_id"
                android:layout_width="0dp"
                android:layout_height="wrap_content"
                android:layout_marginLeft="-10dp"
                android:layout_weight="1"
                android:inputType="numberDecimal"
                android:scrollHorizontally="true"
android:text="4"/>
        </TableRow>
  </TableLayout>
    <TextView
                android:id="@+id/textView13"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:text="Use: abs acos asin atan cos e exp ln
log pi sin sqrt t x ^ ( ) + - * / ! ."

android:textAppearance="?android:attr/textAppearanceMedium"
                android:textColor="#000"/>
    <TextView
        android:id="@+id/txt14_id"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
android:textAppearance="?android:attr/textAppearanceLarge"/>

</LinearLayout>

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/win2_id"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical">

</LinearLayout>

<?xml version="1.0" encoding="utf-8"?>
<resources>
   <color name="green">#0f0</color>
   <color name="blue">#0bf</color>
   <color name="red">#f00</color>
   <color name="read2">#FF0000</color>
   <color name="read25">#F9BBBB</color>
   <color name="orange">#fa0</color>
   <color name="yellow1">#F9E60E</color>
   <color name="yellow2">#F9F89D</color>
   <color name="orange4">#F7BE45</color>
   <color name="orange5">#F7D896</color>
   <color name="green2">#00FF00</color>
   <color name="blue2">#00AAFF</color>
   <color name="blue25">#D9F7F2</color>
   <color name="grey05">#ACA899</color>
   <color name="white1">#FFFFFF</color>
   <color name="white2">#DDDDDD</color>
</resources>
```

```
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <string name="app_name">Calc_1</string>
</resources>
```

```
<?xml version="1.0" encoding="utf-8"?>
<manifest
xmlns:android="http://schemas.android.com/apk/res/android"
    package="der.die.das"
    android:versionCode="1"
    android:versionName="1.0" >
    <uses-sdk android:minSdkVersion="10" />
    <application
        android:icon="@drawable/ic_launcher"
        android:label="@string/app_name" >
        <activity
            android:name=".Calc_1"
            android:label="@string/app_name" >
            <intent-filter>
                <action android:name="android.intent.action.MAIN"
/>
                <category
android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
        <activity android:name=".Win2"></activity>
    </application>
</manifest>
```

…   Edgar Marx (edgarmarx@t-online.de)