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Experiment 2

Algorithm :

1. calculate dx and dy.
dx = X1 - X0;
dy = Y1 - Y0;

2. Depending upon absolute value of dx & dy choose number of steps to put pixel as steps = abs(dx) > abs(dy) ? abs(dx) : abs(dy)

3. calculate increment in x & y for each steps
dx = dx /steps;
dy = dy /steps;

4. Put pixel for each step
X = X0;
Y = Y0;
for (int i = 0; i <= steps; i++)
{
   putpixel (X,Y,"color");
   X += dx;
   Y += dy;
}

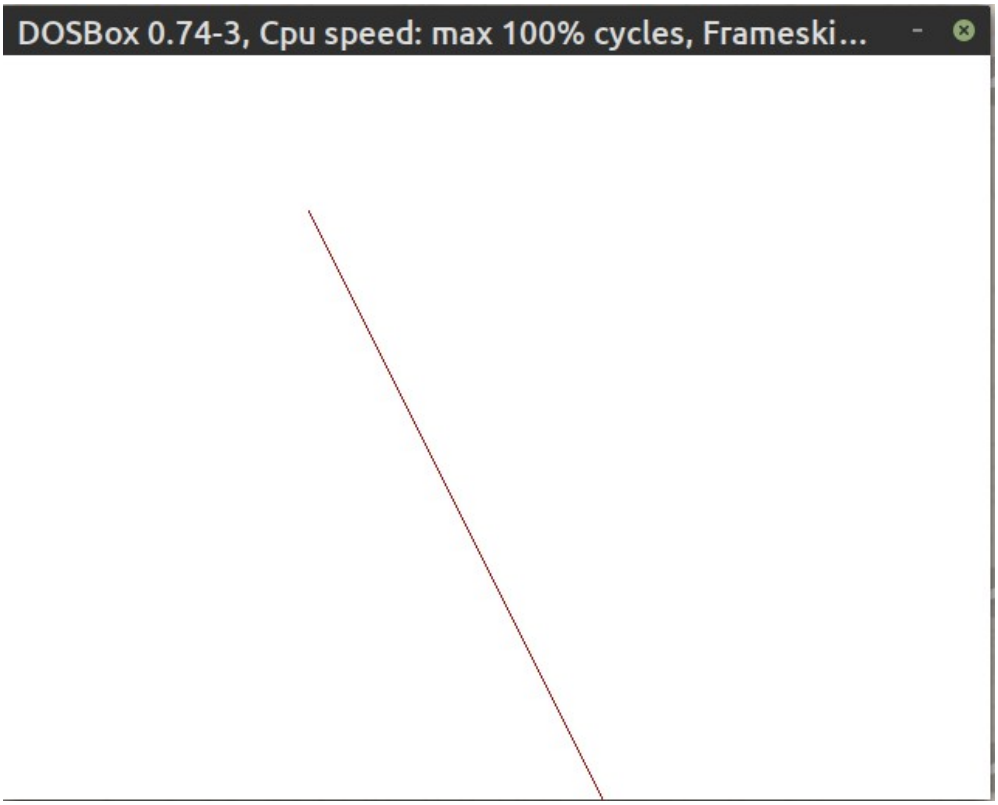
1: Positive Slope

Source Code :

```
#include<graphics.h>
#include<conio.h>
#include<stdio.h>
void main()
{
int gd = DETECT,gm,i;
float x, y,dx,dy,steps;
int x0, x1, y0, y1;
```

```
initgraph(&gd, &gm, "C:\\setup\\TURBOC3\\BGI");
setbkcolor(WHITE);
x0=200;
y0=100;
x1=400;
y1=500;
dx = (float)(x1 - x0);
dy = (float)(y1 - y0);
if(dx>=dy)
{
steps = dx;
}
else
{
steps = dy;
}
dx = dx/steps;
dy = dy/steps;
x = x0;
y = y0;
i = 1;
while(i<= steps)
{
putpixel(x, y, RED);
x += dx;
y += dy;
i=i+1;
}
getch();
closegraph();
}
```

Output :



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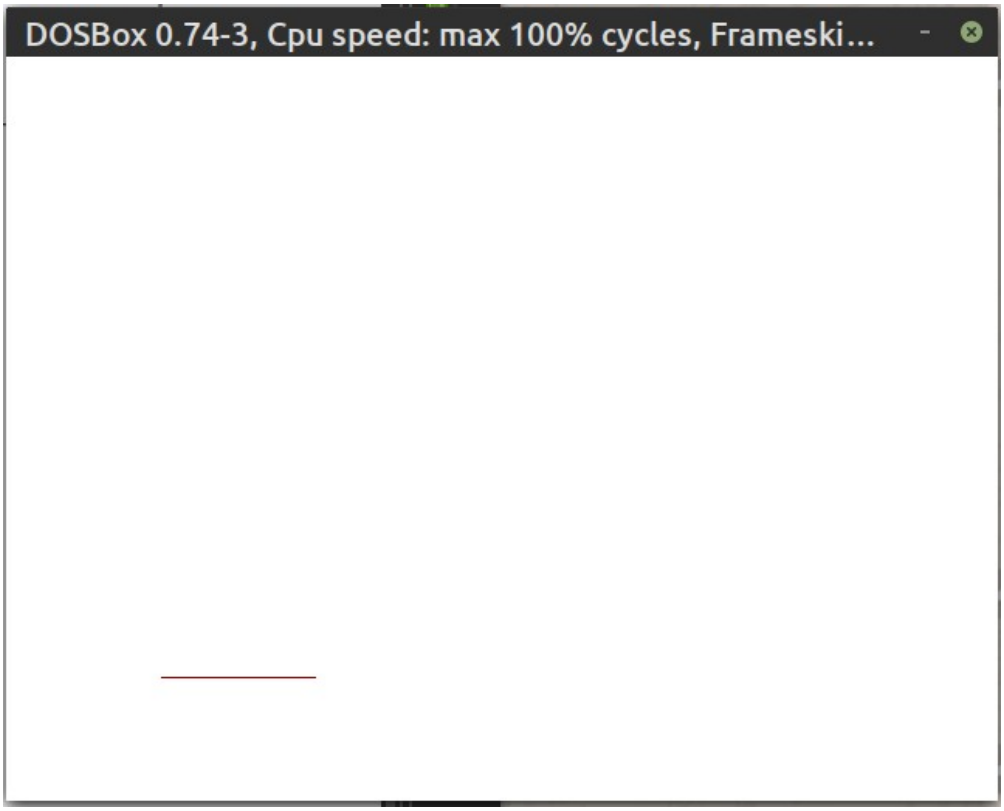
2. Zero Slope :

```
#include<graphics.h>
#include<conio.h>
#include<stdio.h>
void main()
{
int gd = DETECT,gm,i;
float x, y,dx,dy,steps;
int x0, x1, y0, y1;
initgraph(&gd, &gm, "C:\\setup\\TURBOC3\\BGI");
setbkcolor(WHITE);
x0=100;
y0=400;
x1=200;
y1=400;
dx = (float)(x1 - x0);
dy = (float)(y1 - y0);
if(dx>=dy)
{
steps = dx;
```

```
}
else
{
steps = dy;
}
dx = dx/steps;
dy = dy/steps;
x = x0;
y = y0;
i = 1;
while(i<= steps)
{
putpixel(x, y, RED);
x += dx;
y += dy;
i=i+1;
}
getch();
closegraph();
}
```

Output :



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3. Negative Slope :

```
#include<graphics.h>
#include<conio.h>
#include<stdio.h>
void main()
{
int gd = DETECT,gm,i;
float x, y,dx,dy,steps;
int x0, x1, y0, y1;
initgraph(&gd, &gm, "C:\\setup\\TURBOC3\\BGI");
setbkcolor(WHITE);
x0=0;
y0=300;
x1=300;
y1=0;
dx = (float)(x1 - x0);
dy = (float)(y1 - y0);
if(dx>=dy)
{
steps = dx;
}
else
{
steps = dy;
}
dx = dx/steps;
dy = dy/steps;
x = x0;
y = y0;
i = 1;
while(i<= steps)
{
putpixel(x, y, RED);
x += dx;
y += dy;
i=i+1;
```

```
}
getch();
closegraph();
}
```

Output :