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Tugas ke 3 Grafika Komputer Algoritma Pembentukan Lingkaran

1. Garis dengan algoritma Brensenham
   Kode:

```
<!DOCTYPE html>
<html lang="id">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width,
initial-scale=1.0">
    <title>Algoritma Lingkaran Bresenham</title>
    <style>
        canvas {
            border: 1px solid black;
            display: block;
            margin: auto;
        }
    </style>
</head>
<body>
    <h2 style="text-align: center;">Algoritma Lingkaran
Bresenham</h2>
    <canvas id="canvas" width="400" height="400"></canvas>

    <script>
        function putpixel(x, y, color) {
            var ctx =
document.getElementById("canvas").getContext("2d");
            ctx.fillStyle = color;
            ctx.fillRect(x, y, 1, 1);
        }

        function circlePlotPoints(x0, y0, x, y){
            putpixel(x0 + x, y0 + y, "red");
            putpixel(x0 - x, y0 + y, "blue");
            putpixel(x0 + x, y0 - y, "green");
            putpixel(x0 - x, y0 - y, "yellow");
            putpixel(x0 + y, y0 + x, "purple");
            putpixel(x0 - y, y0 + x, "orange");
```

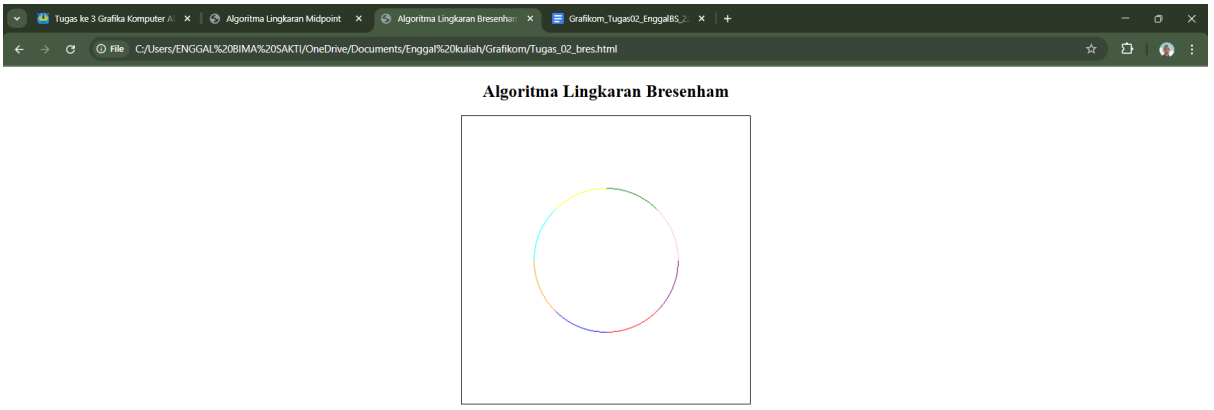
```
            putpixel(x0 + y, y0 - x, "pink");
            putpixel(x0 - y, y0 - x, "cyan");
        }

        function circleBres(x0, y0, r){
            var x = 0;
            var y = r;
            var d = 3 - 2 * r;
            circlePlotPoints(x0, y0, x, y);

            while(y >= x){
                if(d > 0){
                    y--;
                    d = d + 4 * (x - y) + 10;
                } else {
                    d = d + 4 * x + 6;
                }
                x++;
                circlePlotPoints(x0, y0, x, y);
            }
        }

        circleBres(200, 200, 100);
    </script>
</body>
</html>
```

Hasil:



2. Garis dengan algoritma Midpoint
   Kode:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width,
initial-scale=1.0">
    <title>Algoritma Lingkaran Midpoint</title>
    <style>
        canvas {
            border: 1px solid black;
            display: block;
            margin: auto;
        }
    </style>
</head>
<body>
    <h2 style="text-align: center;">Algoritma Lingkaran
Midpoint</h2>
    <canvas id="circleCanvas" width="400" height="400"></canvas>
    <script>
        function putPixel(x, y, color) {
            const canvas =
document.getElementById('circleCanvas');
            const ctx = canvas.getContext('2d');
            ctx.fillStyle = color;
            ctx.fillRect(x + 200, y + 200, 1, 1);
        }

        function circlePlotPoints(x0, y0, x, y) {
            putPixel(x0 + x, y0 + y, "red");
            putPixel(x0 - x, y0 + y, "blue");
            putPixel(x0 + x, y0 - y, "green");
            putPixel(x0 - x, y0 - y, "yellow");
            putPixel(x0 + y, y0 + x, "purple");
            putPixel(x0 - y, y0 + x, "orange");
            putPixel(x0 + y, y0 - x, "pink");
            putPixel(x0 - y, y0 - x, "cyan");
        }

        function circleMidpoint(x0, y0, radius) {
            let x = 0;
```

```
            let y = radius;
            let p = 1 - radius;

            circlePlotPoints(x0, y0, x, y);

            while (x < y) {
                if (p < 0) {
                    p += 2 * x + 1;
                } else {
                    y--;
                    p += 2 * (x - y) + 1;
                }
                x++;
                circlePlotPoints(x0, y0, x, y);
            }
        }

        circleMidpoint(0, 0, 100);
    </script>
</body>
</html>
```

Hasil: