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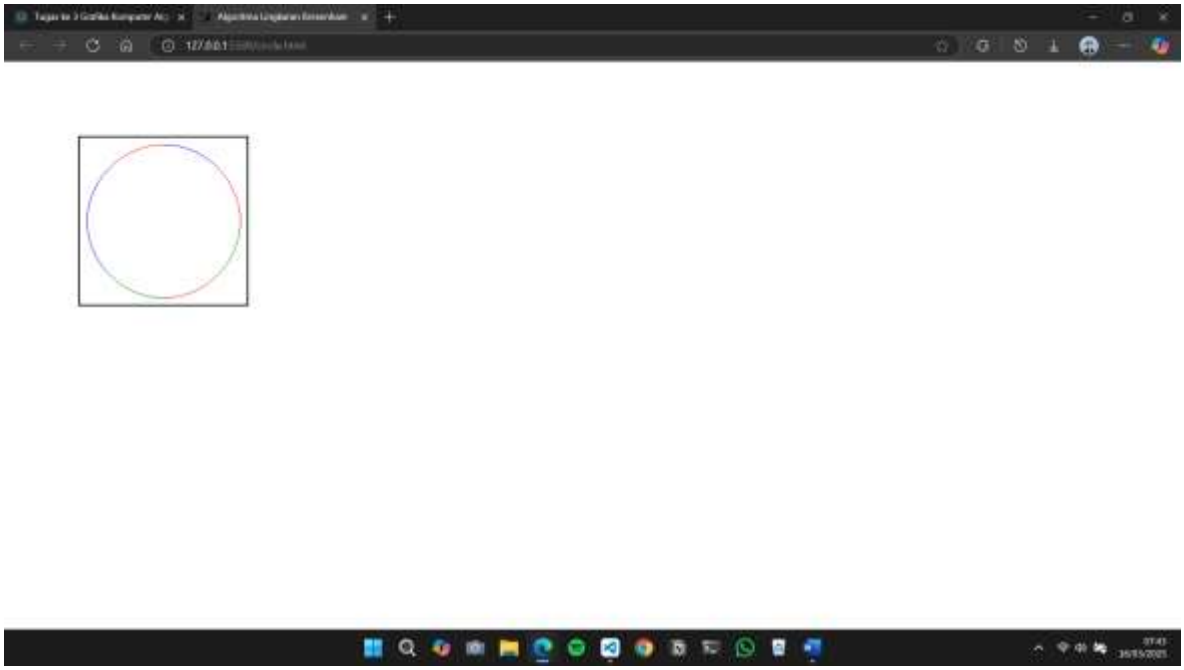
Kelas: B

Grafika Komputer

Algoritma Lingkaran Bresenham

```html
<!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>
</head>
<body>
  <canvas id="layar" width="400" height="400"></canvas>
  <script>
    const layar = document.getElementById("layar");
    const ctx = layar.getContext("2d");

    function gambarPiksel(x, y, color) {
      ctx.fillStyle = color;
      ctx.fillRect(x, y, 1, 1);
    }

    function titikLingkaran(x0, y0, x, y) {
      gambarPiksel(x0 + x, y0 + y, "red");
      gambarPiksel(x0 - x, y0 + y, "green");
      gambarPiksel(x0 + x, y0 - y, "blue");
      gambarPiksel(x0 - x, y0 - y, "red");
      gambarPiksel(x0 + y, y0 + x, "green");
      gambarPiksel(x0 - y, y0 + x, "blue");
      gambarPiksel(x0 + y, y0 - x, "red");
      gambarPiksel(x0 - y, y0 - x, "blue");
    }

    function lingkaranBresenham(x0, y0, r) {
      let x = 0;
      let y = r;
      let d = 3 - 2 * r;

      titikLingkaran(x0, y0, x, y);

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

    lingkaranBresenham(200, 200, 100);

    ctx.strokeStyle = "black";
    ctx.lineWidth = 2;
    ctx.strokeRect(90, 90, 220, 220);
  </script>
</body>
</html>
```

Output:



Algoritma Lingkaran Midpoint

```html
<!DOCTYPE html>
<html lang="id">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Algoritma Lingkaran Midpoint</title>
</head>
<body>
    <canvas id="layar" width="400" height="400"></canvas>
    <script>
        const layar = document.getElementById("layar");
        const ctx = layar.getContext("2d");

        function gambarPiksel(x, y, color) {
            ctx.fillStyle = color;
            ctx.fillRect(x, y, 1, 1);
        }

        function titikLingkaran(x0, y0, x, y) {
            gambarPiksel(x0 + x, y0 + y, "red");
            gambarPiksel(x0 - x, y0 + y, "green");
            gambarPiksel(x0 + x, y0 - y, "blue");
            gambarPiksel(x0 - x, y0 - y, "red");
            gambarPiksel(x0 + y, y0 + x, "green");
            gambarPiksel(x0 - y, y0 + x, "blue");
            gambarPiksel(x0 + y, y0 - x, "red");
            gambarPiksel(x0 - y, y0 - x, "green");
        }

        function lingkaranMidpoint(x0, y0, r) {
            let x = 0;
            let y = r;
            let p = 1 - r;

            titikLingkaran(x0, y0, x, y);

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

        lingkaranMidpoint(200, 200, 100);

    ctx.strokeStyle = "black";
    ctx.lineWidth = 2;
    ctx.strokeRect(90, 90, 220, 220);

    </script>
</body>
</html>
```

Output: