

Saurav

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Sub  $\rightarrow$  Computer Graphics.

Ans 3  $\rightarrow$

### Algorithm

Step 1  $\rightarrow$  Start

Step 2  $\rightarrow$  Declare  $p, q, x, y, r$  variables  $p, q$  are coordinates of the centre of the circle  $r$  is the radius of circle.

Step 3  $\rightarrow$  Enter the value of  $r$ .

Step 4  $\rightarrow$  Calculate  $d = 3 - 2r$ .

Step 5  $\rightarrow$  Initialize  $x = 0$   
&  $nbxy = r$

Step 6  $\rightarrow$  Check if the whole circle is scan converted  
If  $x \geq y$   
Stop

Step 7  $\rightarrow$  Plot eight points by using concepts of 8 way symmetry. The centre is at  $(p, q)$ . Current active pixels is  $(x, y)$ .

put pixel  $(x+p, y+q)$

put pixel  $(x+p, y-q)$

put pixel  $(-x+p, y+q)$

put pixel  $(-x+p, y-q)$



putpixel  $(-x+p, -y+q)$   
putpixel  $(-y+p, -x+q)$   
putpixel  $(y+p, -x+q)$   
putpixel  $(x+p, -y+q)$

Step 8: Find location of the next pixels to be scanned

If  $d < 0$

then  $d = d + 4x + 6$

increment  $x = x + 1$

If  $d \geq 0$

then  $d = d + 4(x - y) + 10$

increment  $x = x + 1$

decrement  $y = y - 1$

Step 9: - Go to step 6

Step 10: Stop.





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```
#include <stdio.h>
#include <graphics.h>
void main()
{
    int gd = DETECT, gm;
    int xc, yc, r, x, y;
    int gd, gm;
    detectgraph(&gd, &gm);
    initgraph(&gd, &gm, "C:\\TurboC3\\BGI");
    clrscr();
    printf("Enter the coordinate of centre :");
    scanf("%d %d", &xc, &yc);
    printf("Enter the radius :");
    scanf("%d", &r);
    x = 0;
    y = r;
    p = 3 - (2 * r);
    for (x = 0; x <= y; x++)
    {
        if (p < 0)
        {
```



$P = P + (4 * X) + 6;$

}

else

{

$Y = Y - 1;$

$P = P + 4 * (X - Y) + 10;$

}

putpixel ( $X_C + X, Y_C - Y, WHITE$ );

putpixel ( $X_C - X, Y_C - Y, WHITE$ );

putpixel ( $X_C + X, Y_C + Y, WHITE$ );

putpixel ( $X_C - X, Y_C + Y, WHITE$ );

putpixel ( $X_C + Y, Y_C + Y, WHITE$ );

putpixel ( $X_C - Y, Y_C - X, WHITE$ );

putpixel ( $X_C + Y, Y_C + X, WHITE$ );

putpixel ( $X_C - Y, Y_C + X, WHITE$ );

}

getch();

cleargraph();

}

Enter radius of circle  
70



Windows BGI

