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type

Ques 3: SP3 Algorithm.

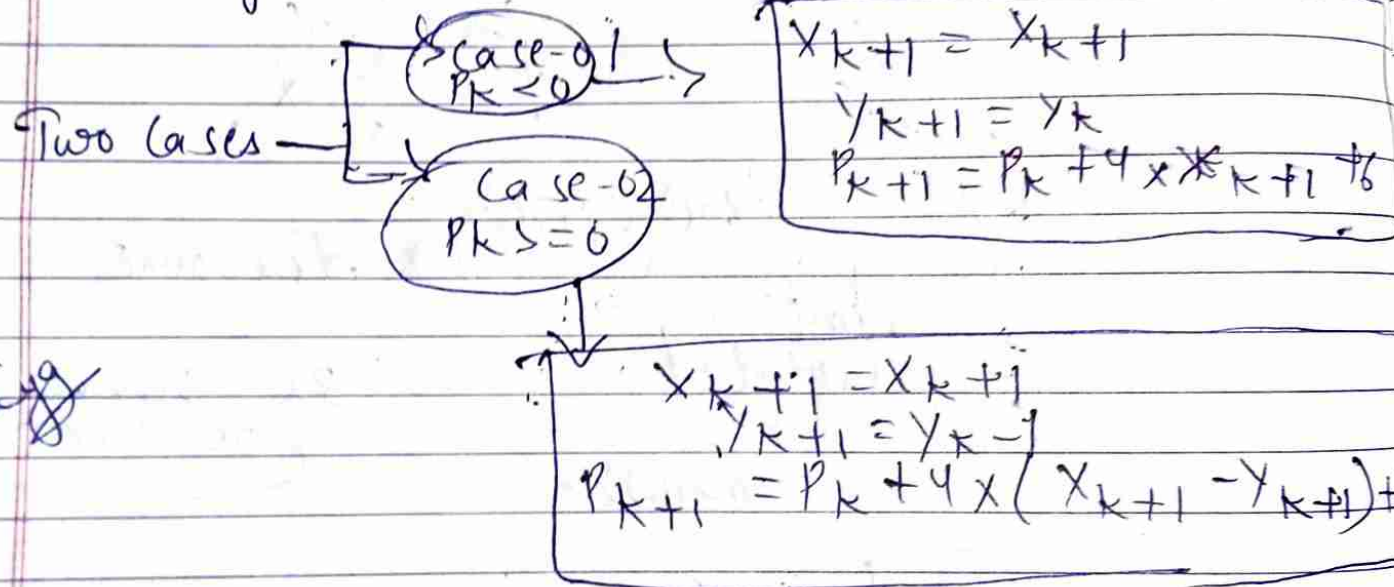
Step 01: $X_0 = 0$ $Y_0 = R$

Step 02: $P_0 = 3 - 2 \times R$

Step 03: Suppose the current point is (X_k, Y_k) and the next point is (X_{k+1}, Y_{k+1}) .

Find the next point of the first octant depending on the value of decision parameter P_k .

follow the below two cases -



Step 04: If the given centre point (X_0, Y_0) is not $(0, 0)$ then do the following and plot the point.

$$X_{plot} = X_c + X_0$$

$$Y_{plot} = Y_c + Y_0$$

Step 05: Keep repeating Step-03 and Step-04 until $X_{plot} \rightarrow X_{plot}$.

Step 06: generates all the points for one octant.

Program:

```
#include <stdio.h>
#include <graphics.h>
```

```
void drawCircle (int xc, int yc, int x, int y)
```

Fig {

```
    putpixel (xc+x, yc+y, RED);
    putpixel (xc-x, yc+y, RED);
    putpixel (xc+x, yc-y, RED);
    putpixel (xc-x, yc-y, RED);
    putpixel (xc+y, yc+x, RED);
    putpixel (xc-y, yc+x, RED);
    putpixel (xc+y, yc-x, RED);
    putpixel (xc-y, yc-x, RED);
}
```

```
void circleBres (int xc, int yc, int r)
```

```
{
    int x=0, y=r;
    int d=3-2*r;
}
```



```
drawCircle(xc, yc, x, y);  
while (y >= x)
```

```
{  
    x++;  
    if (d > 0)
```

```
{  
        d = d + 4 * (x - y) + 10;
```

```
    }  
    y--;
```

```
    else
```

```
        d = d + 4 * x + 6;
```

```
drawCircle(xc, yc, x, y);  
    delay(100);  
}
```

```
}
```

```
int main ()
```

```
{
```

```
    int xc = 50, yc = 50, r2 = 30;
```

```
    int gd = DETECT, gm;
```

```
    initgraph(&gd, &gm, "");
```

```
    circleBres(xc, yc, r2);
```

```
    return 0;
```

```
}
```

Ring

Enter Radius of Circle
70

