1) random x's
2) Computing distance dot/random x, y
3) condition
4) for loop

\[
\frac{\pi r^2}{4} = \frac{\pi}{4}
\]

\# dots in circle ~ \frac{\pi}{4}
```
n = 3
while n > 0:
    if (n == 5):
        n = -99
    print(n)
    n = n + 1
```

What does this code print?

<table>
<thead>
<tr>
<th>A. 3</th>
<th>B. 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C. 3</th>
<th>D. 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>-99</td>
<td>5</td>
</tr>
</tbody>
</table>

Answer: C

With each iteration n will be

3
4
5 (which triggers if statement), then -99

so this code will print

3
4
-99
A valid password is one that is length 5 and starts with "xy". A valid password should terminate the loop. Which of these implements that specification? Note, the input function prints its argument as a prompt and returns whatever the user types as a string (after the user hits enter).

A. while True:
   s = input("Enter a password: ")
   if len(s) == 5 and s[2] == 'xy':
       break
B. s = input("Enter a password: ")
   while len(s) == 5 and s[2] == 'xy':
       s = input ("Enter a password: ")
C. Both A & B are correct
D. Neither A or B are correct

Answer: A
A is correct, the loop will continue until s satisfies the specifications. B is incorrect as the loop will continue while s meets the specification, not terminate.
This is loop will be an infinite loop because the loop body does not change i, which remains $< 10$, and thus the loop conditional remains True forever. Recall for a loop to terminate, something inside the loop needs to change the loop conditional (or we need a break statement).