

# Loops Worksheet

## Build a Fence

For each loop, draw the resulting fence. Which one(s) will build a fence that is 50 meters long with a post every 10 meters?

<b>Loop 1</b>	<pre>int i; for ( i = 0; i &lt; 50; i++) {     moveStraight(i);     putPostHere(); } connectThePosts();</pre>	<b>Loop 7</b>	<pre>int i = 0; while(i &lt; 5) {     moveStraight(i * 10);     putPostHere();     i++; } connectThePosts();</pre>
<b>Loop 2</b>	<pre>int i; for ( i = 0; i &lt; 50; i += 10) {     moveStraight(10);     putPostHere(); } connectThePosts();</pre>	<b>Loop 8</b>	<pre>int i = 0; while(i &lt; 50) {     i +=10;     moveStraight(i * 10);     putPostHere(); } connectThePosts();</pre>
<b>Loop 3</b>	<pre>int i; for ( i = 0; i &lt;= 50; i += 10) {     moveStraight(i);     putPostHere(); } connectThePosts();</pre>	<b>Loop 9</b>	<pre>int i = 0; while(i &lt; 50) {     i +=10;     putPostHere();     moveStraight(i); } connectThePosts();</pre>
<b>Loop 4</b>	<pre>int i; for ( i = 0; i &lt;= 5; i++) {     moveStraight(10);     putPostHere(); } connectThePosts();</pre>	<b>Loop 10</b>	<pre>int i = 0; while(i &lt; 50) {     i +=10;     moveStraight(10);     putPostHere(); } connectThePosts();</pre>
<b>Loop 5</b>	<pre>int i; for ( i = 1; i &lt;= 5; i++) {     moveStraight(10);     putPostHere(); } connectThePosts();</pre>	<b>Loop 11</b>	<pre>int i = 0; while(i &lt;= 50) {     i +=10;     moveStraight(10);     putPostHere(); } connectThePosts();</pre>
<b>Loop 6</b>	<pre>int i; while(i &lt;= 50) {     putPostHere();     moveStraight(i * 10); } connectThePosts();</pre>		

Notes:

- moveStraight() will move the specified number of meters in a forward direction.
- putPostHere() will put up a post at the current position.
- connectThePosts() will attach the fence to all the posts (in order).

## ***What is the output? Don't forget to draw the memory!***

### **Loop 12:**

```
int i, j, k;

for (i = 1; i > 12; i--)
{
    for (j=i; j < 10; j++)
    {
        System.out.print("*");
    }
}

System.out.printf(" At end, i is %d, j is %d, k is %d\n", i, j, k);
```

### **Loop 13:**

```
int i, j, k;

for (i = 1; i = 6; i++)
{
    for (j=i; j < 10; j++)
    {
        System.out.print("+");
    }
    System.out.println("");
}
```

### **Loop 14:**

```
int numSets = 4;
int numNumbers = 5;
int set = 0;
int number = 0;

for (set = 0; set < numSets; set++)
{
    System.out.println("Set " + set + ": ");
    for (number = 1; number <= numNumbers; number++)
    {
        System.out.printf(" %d ", getRandomNumber());
    }
}
```

### **Loop 15:**

```
int i;

for (i = 0; i <= 20; i++)
{
    i++;
    System.out.printf("i is: %d %n", i);
}
System.out.printf("At end, i is: %d %n", i);
```

### **Loop 16:**

```
int i = 5;
int j = 10;

while(i <= (j * 100))
{
    i++;
    j = (j + 10) * i;
    System.out.printf("i is: %d%n", i);
}
System.out.printf("At the end, i is %d, j is %d%n", i, j);
```