1.

a)

```
 int i = 0;
  int j = 0;
  while (i < n) {
      i = j * j;
      if (i < n) {
          out.print(i + " ");
      }
      j++;
  }
  out.close();
```

b)

```
      int i = 10;
  while (i < n) {
      if (n % 10 == 0 && i < n) {
          out.print(i + " ");
      }
      i = i + 10;
  }
  out.close();
```

c)

```
      int i = 1;
            while (i < n) {
                i = i * 2;
                if (i < n) {
                    out.print(i + " ");
                }
            }
            out.close();
```

2.

a)

Statement	Variable Values
`int i = 0, j = 10, n = 0;`	i = 0 J = 10 N = 0
`while (i < j)`	i = 0 J = 10 N = 0
`i++;`	i = 1 j = 10 n = 0
j - -;	i = 1 j = 9 n = 0
n++;	i = 1 j = 9 n = 1

i++;
j - -;
n++;
	i = 2
	j = 8
	n = 2

i++;
j - -;
n++;
	i = 3
	j = 7
	n = 3

i++;
j - -;
n++;
	i = 4
	j = 6
	n = 4

i++;
j - -;
n++;
	i = 5
	j = 5
	n = 5

b)

Statement	Variable Values
`int i = 0, j = 0, n = 0;`	i=0 j=0 n=0
`while (i < 10)`	i=0 j=0 n=0

`i++;`
`  n = n + i + j;`
`  j++;`
	i=1
	n=1
	j=1

`i++;`
`  n = n + i + j;`
`  j++;`
	i=2
	n=4
	j=2

`i++;`
`  n = n + i + j;`
`  j++;`
	i=3
	n=9
	j=3

`i++;`
`  n = n + i + j;`
`  j++;`
	i=4
	n=16
	j=4

`i++;`
`  n = n + i + j;`
`  j++;`
	i=5
	n=25
	j=5

`i++;`
`  n = n + i + j;`
`  j++;`
	i=6
	n=36
	j=6

`i++;`
`  n = n + i + j;`
`  j++;`
	i=7
	n=49
	j=7

`i++;`
`  n = n + i + j;`
`  j++;`
	i=8
	n=64
	j=8

`i++;`
`  n = n + i + j;`
`  j++;`
	i=9
	n=81
	j=9

`i++;` `  n = n + i + j;`	i=10 n=100

`j++;`	j=10

c)

Statement	Variable Values
`int i = 10, j = 0, n = 0;`	i=10 j=0 n=0
`while (i > 0)`	i=10 j=0 n=0

`i--;`
`j++;`
`n = n + i - j;`
	i=9
	j=1
	n=8

`i--;`
`j++;`
`n = n + i - j;`
	i=8
	j=2
	n=6

`i--;`
`j++;`
`n = n + i - j;`
	i=7
	j=3
	n=4

`i--;`
`j++;`
`n = n + i - j;`
	i=6
	j=4
	n=2

`i--;`
`j++;`
`n = n + i - j;`
	i=5
	j=5
	n=0

`i--;`
`j++;`
`n = n + i - j;`
	i=4
	j=6
	n=-2

`i--;`
`j++;`
`n = n + i - j;`
	i=3
	j=7
	n=-4

`i--;`
`j++;`
`n = n + i - j;`
	i=2
	j=8
	n=-6

`i--;`
`    j++;`
`    n = n + i - j;`
	i=1
	j=9
	n=-8

`i--;`
`    j++;`
`    n = n + i - j;`
	i=0
	j=10
	n=-10

d)

Statement	Variable Values
int i = 0, j = 10, n = 0;	i=0 j=10 n=0
`while (i != j){`	i=0 j=10 n=0

`i = i + 2;`
`    j = j - 2;`
`    n++;`
	i=2
	j=8
	n=1

`i = i + 2;`
`    j = j - 2;`
`    n++;`
	i=4
	j=6
	n=2

`i = i + 2;`
`    j = j - 2;`
`    n++;`
	i=6
	j=4
	n=3

Infinite loop	

e)

Statement	Variable Values
`int i = 3, j = 4, n = 0;`	i=4 j=4 n=0
`while (i != 0) {`	i=4 j=4 n=0
`n += j;` `i--;`	i=3 j=4 n=4
`n += j;` `i--;`	i=2 j=4 n=8
`n += j;` `i--;`	i=1 j=4 n=12
`n += j;` `i--;`	i=0 j=4 n=16
`}`	

3.

```
int s = 0;
int i = 1;
while(i <= 10) {
    s = s + i;
    i++;
}
```

4.

```
SimpleReader in = new SimpleReader1L();
        SimpleWriter out = new SimpleWriter1L();

        out.print("Enter the number of terms: ");
        int n = in.nextInteger();
        int i = 0;

        double estimate = 0.0;

        while (i < n) {
            estimate += Math.pow(-1, i) / (2 * i + 1);
            i++;
        }

        final double four = 4.0;
        estimate = estimate * four;

        out.print("Estimate of Pi: " + estimate);

        in.close();
        out.close();
```

5.

```
for (int n = 0; (n * n) < areaBound; n++) {
            for (int m = 0; (m * m) < areaBound; m++) {
                sum += (n * n) + (m * m);
            }
}
```