

Section 9: Loops

Exercise Solutions:

- 1) Describe what the while-loop below does. Then rewrite the code segment using a for-loop.

```
int pos = 0;
while ( pos < min(width, height) ) {
    rect(pos, pos, 50, 50);
    pos = pos + 50;
}
```

This code draws a diagonal line of squares of size 50 across the drawing canvas starting from the upper-left corner.

```
for (int pos = 0; pos < min(width, height); pos = pos + 50) {
    rect(pos, pos, 50, 50);
}
```

- 2) Complete the loop below to find the **smallest power of 3 greater than 100**. Your answer should be stored in the variable `answer` after the loop has executed:

```
int answer = 1; // 1 is 3 to the zeroth power
while( answer <= 100 ) {
    answer = answer * 3;
}
```

- 3) Complete the loop below that calculates the **sum of all even integers from 50 to 100, inclusive**. Your answer should be stored in the variable `sum` after the loop has executed:

```
int sum = 0;
int i = 50;
while ( i <= 100 ) {
    sum = sum + i;
    i = i + 2;
}
```