Ch.6

r6.2 Consider the following array:
int a[] = { 1, 2, 3, 4, 5, 4, 3, 2, 1, 0 };
What is the value of total after the following loops complete?

c. int total = 0;
for (int i = 1; i < 10; i = i + 2) { total = total + a[i]; }

sol

`total` equals 12.

r6.3 Consider the following array:
int a[] = { 1, 2, 3, 4, 5, 4, 3, 2, 1, 0 };
g. for (int i = 0; i < 5; i++) { a[i + 5] = a[i]; }
sol

```
{1, 2, 3, 4, 5, 1, 2, 3, 4, 5}
```

r6.5 Write C++ code for a loop that simultaneously computes both the maximum and minimum of an array.

Sol

```
int numbs[10] = {10, 7, 4, -2 , 22, 8, 5, 2, 0, 3};
int max = numbs[0];
int min = numbs[0];

for (int j = 1; j < 10; j++)
{
   if (numbs[j] < min)
   {
      min = numbs[j];
   }

   if (numbs[j] > max)
   {
      max = numbs[j];
   }
}
```

r6.6 What is wrong with the following loop?

```
int values[10];
for (int i = 1; i <= 10; i++)
{
values[i] = i * i;
}
```

Explain two ways of fixing the error.

sol

The problem with this loop is that it tries to access a location outside of the bounds of the array. The array has 10 locations, numbered 0 through 9, but this code tries to access `values[10]`, which doesn't exist. It also starts with position 1 of
the array, which is probably not what was intended (because arrays start at position 0, not 1).

The first way to fix it is to change the "1" to a "0" and the "<=" to "<" in the loop condition:

```
int values[10];
for (int i = 0; i < 10; i++) { values[i] = i * i; }
```

The second way to fix it is to change the "1" to "0" and the "10" to "9" in the loop condition:

```
int values[10];
for (int i = 0; i <= 9; i++) { values[i] = i * i; }
```

r6.9 Write a loop that reads ten numbers and a second loop that displays them in the opposite order from which they were entered.

sol

```
int my_array[10];
for (int i = 0; i <= 9; i++)
{
   cout << "Enter a number: ";
   cin >> my_array[i];
}

for (int j = 9; j >= 0; j--)
{
   cout << my_array[j] << " ";
}
```