```
/* Thanks to former CS 31 TA Kung-Hua Chang for the set of practice
problems and solutions.
Ref: Practice Problems for C++ Beginners: Moving Beyond the Basics,
by Dr. Kung-Hua Chang. */
```

1. What is the output of the program?

```
#include <iostream>
using namespace std;

int main() {
        int *p = new int;
        * p = 100;

        cout << p << endl;
        cout << *p << endl;

        *p = *p + 7; // What about p = p + 7?
        cout << p << endl;
        cout << *p << endl;

        delete p;
}
```

2. If the following program doesn't compile, why not? If it does compile, what is the output when it is run?

```
#include <iostream>
using namespace std;
int main()
{
        const double pi= 3.14;
        double *p = & pi;

        *p = 2;
        cout << *p << endl;
}
```

3. What is the output of the program below?

```
#include <iostream>
using namespace std;
int main() {
        int x = (9/10) * 10;
        cout << *(&x) << endl;
```

```
}
```

4. What is the output of the program below?

```
#include <iostream>
using namespace std;
int main() {
        int x = 100;
        int *px = &x;

        *px++;

        //What about (*px)++;?

        cout << *px << endl;
}
```

5. Please use pointers to implement mystrcpy() to copy the c-string pointed to by str2 to the c-string pointed to by str1. You implementation should make the program produce the following outputs:

```
C++
Pointers
Pointers
Pointers
```

6. What is the output of the program below?

```
#include <iostream>
using namespace std;
int mystrlen(char *p)
{
        int len = 0;
        while (*p++ != '\0')
                len ++;
        return len;
}

int main()
{
        char str1[] = "C++";
        char str2[] = "Pointers are very powerful!";
        cout << mystrlen(str1) << endl;
        cout << mystrlen(str2) << endl;
}
```

7. What is the output of the program below?

```
#include <iostream>
using namespace std;

bool findValue(int *x, int n, int value)
{
        int i;
        for (i = 0; i< n; i++) {
                if (*(x+i) == value)
                        return true;
                // *(x+i) is the same as x[i]
        }
        return false;
}
int main() {
        int x[5] = {1,2,3,4,5};
        int value = 3;
        if (findValue(x, 5, value))
                cout << “Found “ << value << endl;
}
```