ENGG1340 Computer Programming II
Module 3 Checkpoint Exercise

Name: [redacted]
University ID: [redacted]

Instructions:

For checkpoint 3.1 – 3.5, please type your answer right after the question in this Word document and submit the file on Moodle. For checkpoint 3.6 – 3.9, please complete them on the corresponding activities on Moodle.

Checkpoint 3.1

What is the screen output when each of the following C++ statements is performed? Assume x = 4 and y = 6. You should write "no screen output" if no output is displayed for the statement.

a) `cout << y;` Ans: 6
b) `cout << x - y;` Ans: -2
c) `cout << "y";` Ans: y
d) `cout << "x = " << x;` Ans: x = 4
e) `cout << x * y << " = " << y * x;` Ans: 24 = 24
f) `p = x - y` Ans: no screen output
g) `// cout << "x - y = " << x - y;` Ans: no screen output

Checkpoint 3.2

Given the algebraic equation $y = ax^3 - 12$, which of the following are correct statements for this equation?

a) `y = a * x * x * x -12;`
b) `y = a * x * (x - 12);`
c) `y = a * (x * x) * (x -12);`
d) `y = a * x * (x * x) - 12;`
e) `y = a * ( x * x * x ) -12;`

Ans: (a), (d), (e) are correct for this question

Checkpoint 3.3

What is the value of x after each statement is performed?

a) `x = 6 + 3 * 7 / 1 - 2;` Ans: 25
b) `x = 3 % 3 + 3 * 2 - 2 / 2;` Ans: 5

Checkpoint 3.4

If x = 5, y = 6, z = 7, evaluate each of the following statements, if possible. If it is not possible, state the reason.

a) `(x + z) % y` Ans: 0
b) `(x % y) % z` Ans: 5
c) `(x * z) % y` Ans: 5

Checkpoint 3.5

What is printed by the following program? Suppose the input is: 20 25

```
#include <iostream>
const int NUM = 10;
const double X = 20.5;
int main()
{
      int a, b;
      double p;
      char grade;
      a = 23;
      cout << "a = " << a << endl;
      cout << "Enter two integers: ";
      cin >> a >> b;
      cout << endl;
      cout << "The numbers you entered are "
                  << a << " and " << b << endl;
      p = X + 2 * a - b;
      cout << "p = " << p << endl;
      grade = 'B';
      cout << "Your grade is " << grade << endl;
      a = 2 * NUM + p;
      cout << "The value of a = " << a << endl;
      return 0;
}
```

Ans:

a = 23

Enter two integers: 20 25

The numbers you entered are 20 and 25

p = 35.5

Your grade is B

The value of a = 55

The following is printed out on the screen in sequential order:

- The current value of a (which is 23 followed by a newline)

- The statement “Enter two integers”

- A new line after you input the two numbers

- The numbers you input as a and b with the statement “The numbers you entered are 20 and 25” followed by a newline

-The value of p as calculated according to the formula p = 35.5 (and a newline)

-The statement “Your grade is B” (and a newline)

-The updated value of a according to the formula a = 55

Checkpoint 3.6 - 3.9

Refer to corresponding Moodle activities for details.