CSc 116 A02 - Fall 2018

Name:

Student Number:

Given the `Vector` class defined below, in the back of the page, write a syntactically correct C++ operator times (including the function signature) that implements the dot product of two vectors in 2D. Recall that the dot product of two vectors is defined as $x_1 \cdot x_2 + y_1 \cdot y_2$. Your solution must work with all inputs, not just the one provided below.

```
#include <iostream>

class Vector {
public:
  Vector(float x, float y) :
    mX{x}, mY{y}
  { }

  // Your operator here.

private:
  float mX, mY;
};
```

```
int main() {
  Vector x{1.0f, 3.0f};
  Vector y{2.0f, 4.0f};
  auto dot = x * y;
  std::cout << dot << std::endl;
  return 0;
}
```

When your code is correct, the output will be: `14`

Consider the following possible solution:

```
float operator*(Vector const& rhs)
{
    return (mX * rhs.mX) + (mY * rhs.mY);
}
```