COMP2396B Tutorial 5 Exercise

OOP, Inheritance, Polymorphism, super

1. What is the output of the following program? It has no compile-time or run-time error.

```
class A {
	int n;
	public A() {
		this.n = 1;
	}
	public void calculate() {
		this.n = 4 * this.n;
	}
	public void print() {
		calculate();
		System.out.println("In A: " + this.n);
	}
}

class B extends A {
	int n;
	public B() {
		this.n = 10;
	}
	public void calculate() {
		this.n = 4 * super.n;
	}
	public void print() {
		this.calculate();
		System.out.println("In B: " + this.n);
	}
}

class C extends B {
	int n;
	public C() {
		this.n = 100;
	}
	public void calculate() {
		this.n = 4 * this.n;
	}
	public void print() {
		super.print();
		System.out.println("In C: " + this.n);
	}
}

public class Main {
	public static void main(String[] args) {
		A x1 = new A();
		x1.print();

		B x2 = new B();
		x2.print();

		C x3 = new C();
		x3.print();
	}
}
```

The above exercises are modified from the following references:

-CS2312 “Problem Solving and Programming” by Dr. W.K. Chan, Dr. Helena Wong