SE1011: Half Exam 2   Name:

This is a closed-book, closed-computer, etc. exam. You may use one 8.5"x11" sheet of notes, which you will turn in with your exam. Review all questions before you get started. Use the page at the end of the exam for extra work. Write your name on the front of each page. The exam is printed double-sided. Show all work.

1. (5 points) In the table below, **circle** the type of the result, and **circle** T for true or F for false, and **write** the value of the result.

Expression	type of result	integer division occurs	**implicit** casting occurs	**explicit** casting occurs	value
(int) 7.0 / 3 + 1	int / double / boolean	T / F	T / F	T / F	
5 < 3 && 5 < 10	int / double / boolean	–	–	–	T / F
!(1 < 10)	int / double / boolean	–	–	–	T / F

2. (20 points) Given a string, return the sum of the digits 0-9 that appear in the string, ignoring all other characters. Return 0 if there are no digits in the string. (Note: Character.isDigit(char) tests if a char is one of the chars '0', '1', .. '9'. Integer.parseInt(string) converts a string to an int.)

```
sumDigits("aa1bc2d3") → 6
sumDigits("aa11b33") → 8
sumDigits("Chocolate") → 0

public int sumDigits(String str) {




}
```

3. (20 points) **Complete** a program to determine if water is solid, based on the temperature, in degrees Celcius. Use `JOptionPane.showMessageDialog(null,…)` for the output instead of printing to the console. Use `Integer.parseInt(…)` to convert from a `String` to an int. If the user presses cancel, exit without showing a dialog. Your program may crash if the user enters anything other than an integer.

```java
import javax.swing.JOptionPane;

class Exam {
    public static void main(String[] ignored) {
        String tempString = JOptionPane.showInputDialog(null,
                              "What is the temperature of the water (degC)?");




    }
}
```

4. (5 points) **Describe** one way using named constants like `Math.PI` improves a program.