

CPS 210 Test

1. Write a program that given a 3 digit number, determines if all digits are the same. Below are two sample runs:

```
Enter a 3 digit number: 555
All digits are equal
```

```
Enter a 3 digit number: 123
All digits are NOT equal
```

2. Write a program that given a **double** variable with at least 4 digits, determines the ones digit and thousands digit. Calculate the difference (subtraction) of the thousands digit from the ones digit. Display your result. Below is a sample run:

```
Enter a 4 digit double: 4001.85
1 - 4 = -3
```

3. Given an amount of cups, determine the amount of gallons, quarts, pints and remaining cups the amount of cups makes up. For reference, 1 gallon = 4 quarts = 8 pints = 16 cups. Below is a sample run:

```
Enter number of cups: 121
7 gallon(s), 2 quart(s), 0 pint(s), and 1 cup(s)
```

4. Write a program that asks a user for a number that is divisible by 5. If the user enters a number that is not divisible by 5, you should keep asking the user for a valid number until they enter one. Once they enter the valid number, print out the number they entered. Below is a sample run:

```
Enter a number divisible by 5: 12
Invalid number. Try again: 23
Invalid number. Try again: 25
Number = 25
```

5. Write a program that computes the following series below using either a while or for loop. t and N should be given by the user. Remember, you can use `Math.pow(a, b)`; to raise a number to a power (a would be t , b would be N). Below is a sample run:

$$1 + t + t^2 + t^3 + \dots + t^N$$

```
Enter a value for t and n: 5 3
Summation = 156
```