

Java Homework Quiz #1

All questions refer to the following method CheckNumber, which checks the validity of its integer parameter, and the trace table that is generated by it and the main program working together.

```
/** @param n an integer
 * @return true if n is valid, false otherwise
 */
static boolean checkNumber(int n) {
    int d1, d2, d3, checkSum, nRemaining, sum;
    boolean ret = false;

    // strip off digits
    checkSum = n %100;
    nRemaining = n / 100;

    d3 = nRemaining % 10;
    nRemaining /= 10;

    d2 = nRemaining % 10;
    nRemaining /= 10;

    d1 = nRemaining % 10;
    nRemaining /= 10;

    // check validity
    sum = d1 + d2 + d3;
    ret = sum == checkSum;

    System.out.printf("%d\t %d\t\t %d\t %d\t %d\t %d\t\t %d\t %b\n",
                      n,    checkSum, d1, d2, d3, nRemaining, sum, ret);

    return ret;
} // end checkSum

public static void main(String[] args) {
    boolean valid = false;

    System.out.printf("%s\t %s\t %s\t %s\t %s\t %s\t %s\t %s\n",
                      "n",    "checkSum", "d1", "d2", "d3", "nRemaining", "sum", "ret");
    checkNumber(59317);
    checkNumber(59417);
    checkNumber(78910);
    checkNumber(46810);
    checkNumber(36918);
    checkNumber(702810);

} // end main
```

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Student _____

Date: _____

1) Complete the following trace table that is generated from the program: (6 points)

n	checksum	d1	d2	d3	nRemaining	sum	ret
59317							
59417							
78910							
46810							
36918							
702810							

Bonus Questions:

2) Complete the trace table for the following calls to checkNumber: (3 points)

```
checkNumber(234567);  
checkNumber(234512);  
checkNumber(1234512);
```

n	checksum	d1	d2	d3	nRemaining	sum	ret
234567							
234512							
1234512							

3) Fill in the blanks below with digits that would make the checkNumber return true. Note the spaces between the digits are only shown to help you fill in the four missing digits. (2 points)

```
checkNumber(1 _ _ _ _ 26);
```