

Spacing

To improve the look of the data being displayed on the console window you often want to include spacing to make the data easier to read. In a `println` statement this can be accomplished simply by adding one or more strings that contain the 'space' character.

Example 1:

```
System.out.println(1 + " " + 2 + " " + 3 + " " + 4 + " " + 5);
```

This code produces the following output:

```
1 2 3 4 5
```

The `println` statement includes 5 strings that contain one space character used to space the numbers apart. Notice the use of the plus '+' operator. Because these '+' operators are position next to a string their purpose has changed. Instead of doing an add operation they do a merge or concatenation operation. When the '+' operator is used in this context it is referred to as the **concatenation operator**.

In a `println` statement any string that is positioned next to a literal value or variable (i.e. anything that is not a string) must include the '+' concatenation operator between them.

Example 2:

```
System.out.println(3 + " " + " " + 7 + " = " + (3 + 7));
```

This code has the following format

number + string + number + string + number

and produces the following output

```
3 + 7 = 10
```

There two things you can learn from this example.

1. Any string in a `println` statement that is not at the beginning or the end of the statement must have a '+' concatenation operator before and after it.
2. Once a `println` statement encounters a '+' concatenation operator all '+' signs after the first automatically become concatenation operators. To prevent a '+' add operation from turning into a concatenation operator you must wrap parentheses around it and its two operands. This works because in the order of operations parentheses are evaluated first therefore the code `(3 + 7)` will evaluate to 10 before the rest of the statement is evaluated.

Directions

- Use the `println` statement to produce the output shown below.
- The `println` statement must do the math calculation at the end of each problem and display it.
- In this assignment no numbers are allowed to be displayed as a string (i.e. "45").

Simple Math

```
5 + 10 = 15
30 / 5 = 6
50 + 20 - 6 * 3 = 52
40 / (3 + 5) * 2 = 10
```

The remainder when you divide 15 by 4 is 3.

Jack had 3 pencils and Jill had 5.
Jack and Jill had 8 pencils.