# PP Task 3.1 Code Tracing Additional Questions

*1. How does Code Sample 3 illustrate the concept of sequence?*

In sample 3 there are 3 values. Items is the combined value of the variables books and magazines. The items variable is calculated in line 5 resulting in an output of 0 in line 6, books and magazines are given new values in line 6 and 7 respectively. This change is not reflected in the items variable.

*2. The code books = 4; is an example of which kind of programming statement?*

This is an assignment statement.

*3. What actions does the computer perform when it executes the statement d = b; from Code Sample 4? (****Hint:*** *Think in terms of what has been taught in the lectures and notes. You do not need to research what happens at the hardware level as that is outside the scope of the unit.)*

The statement d = b; is a statement that makes d become the same as b. the computer takes what is in the variable b, in this case 20 then the value in variable d becomes 20. the memory where d is stored becomes the same as the value in memory for b.

*4. What actions does the computer perform when it executes the statement c = e + c; from Code Sample 4?*

The + operator is used for addition. The computer adds the current value of c to the variable e. in this case c initially contains the value 30 and e contains the value of 50, the computer adds 30 to 50 and c becomes the resulting value of 80.

*5. How would the value of variable i change in the statement i = i + 1;?*

This statement increments I by 1, if I was initialised as 0 once the statement is resolved I would become 1.

6. What are the value and type of the following expressions (given the associated variable values)? Treat each row independently. Do not worry if Word autocorrects "straight quotes" to “smart quotes”; we will know what you mean. But do correct its auto-capitalisation of primitive type names. (**Hint:** You may wish to review the way literal values of different types are expressed in Java.)

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| --- | --- | --- | --- |
| **Variable Values** | **Expression** | **Value** | **Type** |
| a = 4; | 4 | 4 | int |
| a = 4.3; | 4.3 | 4.3 | double |
| a = “hey” | "Hey" | Hey | String |
| a = 1; b = 3; c = 2; | 1 + 3 \* 2 | 7 | int |
| a = 1; b = 2; | a + b | 3 | int |
| a = 3; | 2 \* a | 6 | int |
| a = 1.5; b = 2; | 2 \* a + b | 6 | double |
| a = 1.5; b = 2; | a + 2 \* b | 5.5 | double |
| a = 1; b = 1; c = 6; | (a + b) \* c | 12 | int |
| a = 'D'; | "Jane " + a + " Jones" | Jane D Jones | String |
| a = "John"; | a + " Jones" | John Jones | String |
| a = 421; | "TK" + a | TK421 | String |

7. What is the most appropriate type to store the following?

|  |  |
| --- | --- |
| **Data** | **Type** |
| Number of students in a tutorial | int |
| A person’s name | String |
| Average age of a group of people | double |
| A temperature in Celsius | double |
| The name of a unit | String |
| Points scored in a soccer game | int |
| A student’s ID number | int |
| A person’s phone number, including area code | int |
| The cost of an item in a shop | double |