

1. In the below elements which of them are values or an expression? eg:- values can be integer or string and expressions will be mathematical operators.

* mathematical operator

'hello' string

-87.8 float

- mathematical operator

/ mathematical operator

+ mathematical operator

6 integer

2. What is the difference between string and variable?

String: A 'string' is a datatype which holds list of characters in order. String comprises of letters, words, integers, etc., For example s = ('e', 'laugh', '7')

Variable: A 'variable' holds a value of any kind of data. For example x = 7654

3. Describe three different data types.

i. string: String is an array representing characters. It is a collection of characters put in a single quote, double quote. It is represented by str.

ii. list: List is also an array which comprises of numbers, float, boolean, string, etc., It is very flexible as the items in the list do not need to have same type. It is represented by list.

iii. tuple: Tuple can contain any number of elements with different data types (like strings, integers, etc.,) .The only difference between tuple and list is that tuples are immutable i.e. tuples cannot be modified after it is created. It is represented by tuple.

4. What is an expression made up of? What do all expressions do?

Expression comprises of mathematical operators, variable and values. They assign value to variable, it does calculation or evaluation."

5. This assignment statements, like `spam = 10`. What is the difference between an expression and a statement?

A statement creates a value or displays a value.

An Expression always comprises of values, operators and variables. But the difference between expression and statement is like creating a variable or displaying a value, it only does whatever the statement says.

`spam = 10` is a statement

6. After running the following code, what does the variable `bacon` contain?

```
bacon = 22
```

```
bacon + 1
```

```
In [1]: bacon = 22
```

```
In [2]: bacon + 1
```

```
Out[2]: 23
```

7. What should the values of the following two terms be?

'spam'+'spamspam'

'spam'*3

```
In [4]: 'spam'+'spamspam'
```

```
Out[4]: 'spamspamspam'
```

```
In [5]: 'spam'*3
```

```
Out[5]: 'spamspamspam'
```

Same results for both.

8. Why is eggs a valid variable name while 100 is invalid?

Term eggs is a word i.e., alphabetical whereas 100 is numerical which is invalid because when u run using numerical name the compiler shows SyntaxError: cannot assign to literal. Hence variable name cannot start with number.

```
In [2]: eggs = 7
```

```
In [3]: 100 = 3
```

```
File "C:\Users\viswa\AppData\Local\Temp\ipykernel_4436\127387668  
7.py", line 1
```

```
100 = 3
```

```
^
```

```
SyntaxError: cannot assign to literal
```

9. What three functions can be used to get the integer, floating-point number, or string version of a value?

The functions are

integer - **int()**

floating-point number - **float()**

string - **str()**

10. Why does this expression cause an error? How can you fix it?

'I have eaten' + 99 + 'burritos.'

Executing as given in the question.

```
In [1]: 'I have eaten' + 99 + 'burritos.'
```

```
-----  
-----  
TypeError                                 Traceback (most recent call  
last)  
~\AppData\Local\Temp\ipykernel_4436\265137553.py in <module>  
----> 1 'I have eaten' + 99 + 'burritos.'
```

```
TypeError: can only concatenate str (not "int") to str
```

99 is not quoted hence it shows error - TypeError: can only concatenate str(not "int") to str. If we include quotes then expression executes answer as below.

```
In [5]: 'I have eaten' + '99' + 'burritos.'
```

```
Out[5]: 'I have eaten99burritos.'
```

Concatenation of the same kind of datatype can only be executed.