

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.

\* (Expression)

'hello' (Value)

-87.8 (Value)

- (Expression)

/ (Expression)

+ (Expression)

6 (Value)

2. What is the difference between string and variable?

A variable is a value that can change and store different kinds of values. Operations can be performed on variables. Variables can be of different data types such as integer, float or string.

A string is a data type used to represent variables made from alphabets or alphanumeric characters and special characters including space. A string in Python is represented by “ ” or “abc1234”.

3. Describe three different data types.

Three different data types can be broadly classified as String, Numeric and Boolean.

String: to represent alphabets, special characters, alphanumeric combinations

Numeric: to represent numerals and digits such as 1,2, 123 etc.

Boolean: to represent True(1) or False(0) as a non-string data type

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

Expressions are made from operators and operands. Expressions combine to produce a different value. Evaluation of operators depends upon their precedence order.

Example:  $x = 4 + 5 - 2$  is an expression

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

Expressions are a combination of different operands and operators. It produces a new result.

Statements do not produce a new result and are standalone instructions that the interpreter executes.

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

```
bacon = 22
```

```
bacon + 1
```

`bacon` if printed will return 22 as the value of `bacon` is not assigned or changed to `bacon + 1`

i.e. if the expression would have been `bacon = bacon + 1` then the result will be 23

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

`'spam' + 'spamspam'` : will return `'spamspamspam'`

`'spam' * 3` : will return `'spamspamspam'`

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

As per the syntax and rule to assign variable names, a variable name should not start with a digit or it cannot be started with a literal thus `100` is not a valid variable name as it starts with 1

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

`int()`, `float()`, `str()`

Example:

```
a = 10
```

```
int(a) = 10
```

```
float(a) = 10.0
```

```
str(a) = '10'
```

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

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

It returns an error because 99 is not of the same data type as the other values around '+' operator. During concatenation, it is necessary that all values are strings.

Fix:

```
'I have eaten ' + str(99) + ' burritos.'
```