

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.

*

'hello'

-87.8

-

/

+

6

Ans-

- Values: 'hello', -87.8, 6
- Expression: *, -, /, +

2. What is the difference between string and variable?

String: A string is a sequence of characters enclosed in quotes (single or double). It represents textual data and is immutable, meaning it cannot be changed once created.

Variable: A variable is a named reference to a value. It can hold different types of data, including strings, numbers, or other objects. Variables can be assigned and reassigned throughout the program, allowing for dynamic manipulation of data.

3. Describe three different data types.

Integer: Represents whole numbers without decimal points. Example: 5, -3, 0.

Float: Represents numbers with decimal points or in exponential notation. Example: 3.14, -0.25, 1.5e10.

String: Represents a sequence of characters. Example: "Hello", 'World', "123".

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

An expression is made up of operators and operands. Operators perform specific operations on the operands. All expressions evaluate to a value. They can perform mathematical computations, manipulate strings, or perform logical operations.

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

An expression produces a value when executed, whereas a statement performs an action. In the assignment statement "`spam = 10`," it assigns the value 10 to the variable "spam." The expression is "`10`," which evaluates to the value 10.

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

```
bacon = 22
```

```
bacon + 1
```

After running the code, the variable "bacon" will contain the value 22. The expression "`bacon + 1`" adds 1 to the current value of "bacon" (which is 22), resulting in 23. However, the value is not stored back in the "bacon" variable, so its value remains 22.

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

```
'spam' + 'spamspam'
```

```
'spam' * 3
```

Ans-

`'spam' + 'spamspam'` evaluates to the string `'spamspamspam'`.

`'spam' * 3` evaluates to the string `'spamspamspam'`.

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

In Python, variable names must follow certain rules. One cannot start with a number, so "`eggs`" is a valid variable name. However, "`100`" starts with a number, which is not allowed as per the naming rules.

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

The three functions to convert values to different types are:

- `int()`: Converts a value to an integer type.
- `float()`: Converts a value to a floating-point number type.
- `str()`: Converts a value to a string type.

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

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

The expression `'I have eaten ' + 99 + ' burritos.'` causes an error because you cannot directly concatenate a string with an integer. We can first convert the integer to a string using the `str()` function: `'I have eaten ' + str(99) + ' burritos.'` To fix the error.