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

**Answer:**

Values,

* 'hello'
* -87.8
* 6

Expressions,

* \*
* -
* /
* +

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2. What is the difference between string and variable?

**Answer:**

1. String is a data type where the values are a sequence of letters/characters, words, sentences whereas variables are storage objects that are used to store the values of string, int, float, Boolean, list or such.
2. Strings are represented within Single or Double Quotes whereas variables are represented by a user defined word.
3. For example,

name = “Pradeep”

Here, **name** is a variable, and the value **Pradeep** is a string.

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3. Describe three different data types.

**Answer:**

1. Integer (int) – this data type is used to represent the **numeric values**. For example – 7, 11, 95

Sample declaration: count = 7

1. Boolean (bool) – this data type is used to represent the values **True** or **False**. Boolean variables can only contain either True or False it cannot store any other values.

Sample declaration: isTargetAchieved = True

1. Float (float) – this data type is used to represent the numbers with decimal point **values.** For example – 5.9, 7.0, 11.59

Sample declaration: weight = 76.70

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

**Answer:**

* An expression is made up of operators (+, -, /, \*, %, etc) and operands (String, number, etc).
* All the expressions will produce an output which can be stored in a variable or can be used directly.
* For example,

radius = 5

circumference\_of\_circle = 2 \* (22/7) \* radius

Explanation: The above expression **2 \* (22/7) \* radius**, will calculate the value of 22/7 and then multiples the return value with 2 and the radius (5) which will produce the value – **31.42** which will be stored in the float variable circumference\_of\_circle.

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

**Answer:**

|  |  |
| --- | --- |
| **Expression** | **Statement** |
| It is a combination of variables, operators and values that yields some result. | It represents an action or a command. |
| It always produces or returns a result value. | It does whatever that has been told. |
| Every expression cannot be a statement | Every statement can be an expression |
| Example, **2 \* (22/7) \* 5** | Example, **print (“Hello World”)** |

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

bacon = 22

bacon + 1

**Answer:**

The value of the variable bacon is **22**.

Explanation – In the first line, the variable bacon is assigned with the value 22, in the next line it is added with 1 but it is not assigned to any variable or bacon itself. Hence the value of Bacon will be unaffected, and its value will be 22.

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

'spam' + 'spamspam'

'spam' \* 3

**Answer:**

'spam' + 'spamspam' – spamspamspam

Explanation – This is basically string concatenation; hence the values will be appended.

'spam' \* 3 – spamspamspam

Explanation – The \* operator replicates the string by the number of times of the given number.

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

**Answer:**

Variable names in python must follow certain rules as per the Python norms. According to the rules,

* a variable name can begin with letter/word
* a variable name can begin with Underscore (\_) symbol
* a variable name cannot begin with a Number
* variable names are case sensitive
* variable names can contain alphabets, numbers and underscore.

Therefore, based on the rules the variable name eggs is valid while 100 is invalid.

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

**Answer:**

* Integer – int(value)
* Float – float(value)
* String – str(value)

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

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

**Answer:**

It contains three parts, the first and last parts ('I have eaten ' & ' burritos.') are string values whereas **99** is an integer value. The **+** operator will behave as a concatenation operation with strings. The integer value 99 cannot be appended to the string value, hence it throws an error.

Solution:

The expression can be written as,

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

Or since all the strings it can also be written directly as 'I have eaten 99 burritos.'

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