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**

**1. Identify values and expressions:**

* **\* → Expression (mathematical operator)**
* **'hello' → Value (string)**
* **-87.8 → Value (floating-point number)**
* **- → Expression (mathematical operator)**
* **/ → Expression (mathematical operator)**
* **+ → Expression (mathematical operator)**
* **6 → Value (integer)**

2. What is the difference between string and variable?

**Answer:-**

* **A string is a sequence of characters enclosed in quotes, e.g., "hello", '123'.**
* **A variable is a name that stores a value, which can be a string, integer, float, etc., e.g., message = "hello".**

3. Describe three different data types.

**Answer:-**

1. **Integer (int)**: Whole numbers, e.g., 10, -5
2. **Floating-point (float)**: Decimal numbers, e.g., 3.14, -2.5
3. **String (str)**: Sequence of characters, e.g., "Python", '123'
4. What is an expression made up of? What do all expressions do?

**Answer:-**

* An **expression** consists of values, variables, and operators that evaluate to a single value.
* Example: 5 + 3 evaluates to 8.
* Expressions perform computations and produce results.

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

**Answer:-**

* **Expression: Produces a value, e.g., 10 + 5, x \* y**
* **Statement: Performs an action, e.g., spam = 10 (assignment statement). Statements do not return values.**

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

bacon = 22

bacon + 1

**Answer:-**

The expression bacon + 1 evaluates to 23, but bacon remains 22 because the result is not assigned back to bacon.

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

'spam' + 'spamspam'

'spam' \* 3

**Answer:-**

'spam' + 'spamspam' # Output: 'spamspamspam'

'spam' \* 3 # Output: 'spamspamspam'

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

**Answer:-**Variable names **must start with a letter or an underscore**, but 100 starts with a digit, making it invalid.

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

**Answer:-**

* int() → Converts a value to an integer, e.g., int("10") → 10
* float() → Converts a value to a float, e.g., float("10.5") → 10.5
* str() → Converts a value to a string, e.g., str(10) → "10"

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

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

**Answer:-**

* **Error**: Cannot concatenate a string ('I have eaten ') with an integer (99).
* **Fix**: Convert 99 to a string using str(99):