Python Variables and Data Types: Beginner

Ages 13–18 · Computing

Name _____ Class _____ Date _____

A Key terms: match each term to its meaning

Write the letter of the correct meaning in the box next to each term.

1	**Variable**	☐	**A** Cannot be changed in place after creation, like an int, str or tuple.
2	**Data type**	☐	**B** Turning a value into another type with functions such as int(), float() and str().
3	**Dynamic typing**	☐	**C** A reserved word such as class, if or for that cannot be used as a variable name.
4	**Keyword**	☐	**D** The type belongs to the value, so the same name can refer to values of different types over time.
5	**Mutable**	☐	**E** The kind of a value, such as int, float or str, which decides what you can do with it.
6	**Immutable**	☐	**F** Can be changed after it is created, like a list, dict or set.
7	**Type conversion**	☐	**G** A name that refers to a value, created when you first assign to it.

B Quick quiz

Circle the best answer, write its letter, then explain your choice in a few words.

1 Which symbol assigns a value to a variable in Python?

a) = **b)** ==
c) : **d)** ->

Answer: _____ Why? _____

2 What does type(3.0) show?

a) <class 'int'> **b)** <class 'str'>
c) <class 'float'> **d)** <class 'bool'>

Answer: _____ Why? _____

3 Which of these variable names is invalid in Python?

a) user_age **b)** _score
c) totalCount **d)** 1st_prize

Answer: _____ Why? _____

4 What does '10' + '5' evaluate to?

a) 15 **b)** '105'
c) '15' **d)** An error

Answer: _____ Why? _____

5 Which of these types is mutable (can be changed in place)?

a) tuple **b)** str
c) list **d)** int

Answer: _____ Why? _____

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Answer key for teachers · Ages 13–18 · Computing

A Key terms

1	**Variable**	G	A name that refers to a value, created when you first assign to it.
2	**Data type**	E	The kind of a value, such as int, float or str, which decides what you can do with it.
3	**Dynamic typing**	D	The type belongs to the value, so the same name can refer to values of different types over time.
4	**Keyword**	C	A reserved word such as class, if or for that cannot be used as a variable name.
5	**Mutable**	F	Can be changed after it is created, like a list, dict or set.
6	**Immutable**	A	Cannot be changed in place after creation, like an int, str or tuple.
7	**Type conversion**	B	Turning a value into another type with functions such as int(), float() and str().

B Quick quiz

1 a) =

A single = assigns the value on the right to the name on the left. == compares two values for equality.

2 c) <class 'float'>

3.0 has a decimal point, so it is a float, even though its value is a whole number.

3 d) 1st_prize

Names cannot start with a digit, so 1st_prize gives a SyntaxError. The others are valid, although PEP 8 prefers snake_case such as total_count.

4 b) '105'

Both values are strings, so + joins them into the string '105'. To add them as numbers, convert first: int('10') + int('5') gives 15.

5 c) list

Lists can be changed after creation, for example with append(). Tuples, strings and ints are immutable.