

Name: _____

Date: _____

Period: _____

Variables and Data Types — Practice Worksheet

Instructions: Answer each question clearly. For multiple choice, circle the letter of the best answer. For short answer and free response, write your answer in the space provided.

1. **Multiple Choice:** Which of the following is a valid variable name in Python?

- A. 2ndPlace
- B. my-variable
- C. my_variable
- D. class

2. **Short Answer:** What data type would you use to store a person's age? Explain why.

3. **Multiple Choice:** Which of the following is an example of a floating-point number?

- A. 42
- B. "3.14"
- C. 3.14
- D. True

4. **Free Response:** Write a line of Python code that creates a variable named `score` and assigns it the integer value 95.

5. **Short Answer:** What is the difference between the data types `int` and `float`?

6. **Multiple Choice:** Which of the following is NOT a basic data type in most programming languages?

- A. Integer
- B. String
- C. Loop
- D. Boolean

7. **Free Response:** Declare a variable called `greeting` that stores the text "Hello, World!".

8. **Short Answer:** What value does the expression $7 + 3.0$ produce, and what is its data type?

9. **Multiple Choice:** Which of these is a Boolean value?

- A. 0
- B. "False"
- C. false
- D. False

10. **Free Response:** Explain why the following variable name is invalid in most programming languages: `2fast`. Then, suggest a valid alternative.

Answer Key

1. **C.** `my_variable` is valid because it starts with a letter/underscore and contains only letters, digits, and underscores. `2ndPlace` starts with a digit, `my-variable` contains a hyphen, and `class` is a reserved keyword.
2. **Integer (int).** Age is typically a whole number (e.g., 15, 21), so an integer data type is appropriate. It does not require decimal precision.
3. **C.** 3.14 is a floating-point number because it has a decimal point. 42 is an integer, "3.14" is a string, and True is a Boolean.
4. `score = 95`
5. An `int` (integer) stores whole numbers without a decimal point (e.g., 5, -3). A `float` (floating-point) stores numbers with a decimal point (e.g., 5.0, -3.14).
6. **C.** Loop is a control structure, not a data type. Integer, string, and Boolean are all basic data types.
7. `greeting = "Hello, World!"`
8. The expression `7 + 3.0` produces 10.0, which is a `float` because adding an integer and a float results in a float.
9. **D.** `False` is a Boolean value in Python (capitalized). `false` (lowercase) is not recognized as a Boolean in Python.
10. The name `2fast` is invalid because it starts with a digit. Most languages require variable names to begin with a letter or underscore. A valid alternative could be `fast2` or `twoFast`.