

Alpha School

Python Programming

Practice Worksheet

Aligned with Lessons 1-11: first programs, variables, control flow, strings, functions, lists, files, debugging, algorithms, quiz game, and OOP.

Name: _____

Date: _____

Grade: _____

Score: _____ / _____

1. Multiple choice. What does this program print?

```
print(2 + 3 * 4)
```

A) 20 B) 14 C) 24 D) 9

2. Trace the code. What value is printed at the end?

```
x = 5
```

```
x = x + 3
```

```
x = x * 2
```

```
print(x)
```

3. Predict the output of this loop. Write each line that prints.

```
for i in range(3):
```

```
    print(i)
```

4. Multiple choice. Which line correctly reads a whole number from the user?

A) age = input("Age? ") B) age = int(input("Age? ")) C) age = str(input("Age? ")) D) age = float("Age?")

5. Debug the code. Find TWO errors and describe how to fix each one.

```
Print("Hello")
if score > 90
    print("A")
```

6. Predict the output when score = 85.

```
if score >= 90:
    print("A")
elif score >= 80:
    print("B")
else:
    print("C or below")
```

7. Write a function greet(name) that returns the string "Hello, " followed by the name. Then show one example call.

8. Multiple choice. fruits = ["apple", "banana", "cherry"]. What is fruits[1]?

A) apple B) banana C) cherry D) an error

9. Trace this while loop. How many times does it print, and what is count at the end?

```
count = 0
while count < 3:
    print(count)
    count = count + 1
```

10. Predict the output.

```
word = "python"
print(word.upper())
print(len(word))
```

11. Debug the code. This loop never ends. Explain WHY and fix it.

```
secret = 7
guess = int(input("Guess 1-10: "))
while guess != secret:
    print("Try again!")
```

12. Write a function `is_even(n)` that returns True if `n` is even and False if `n` is odd. (Hint: use `n % 2`.)

13. Multiple choice. `student = {"name": "Ada", "grade": 8}`. What does `student["grade"]` give?
A) Ada B) 8 C) name D) an error

14. Trace the loop. What is total after it finishes?

```
total = 0
for n in [1, 2, 3, 4, 5]:
    total = total + n
print(total)
```

15. Write a program that asks the user for their age and prints "Adult" if age $\geq$ 18, otherwise "Under 18".

16. Predict the output. What happens when this runs?

try:

```
n = int("abc")
```

except ValueError:

```
print("Not a number!")
```

17. Multiple choice. Which search method **REQUIRES** the list to be sorted first?

A) Linear search B) Binary search C) Both D) Neither

18. Explain in your own words: what is the difference between = (assignment) and == (comparison)? Give one example of each.

ANSWER KEY -- For Teacher/Parent Use

1. B) 14. Multiplication comes before addition: $3 * 4 = 12$, then $2 + 12 = 14$.
2. 16. x becomes 8, then $8 * 2 = 16$.
3. 0, then 1, then 2 (range(3) gives 0, 1, 2).
4. B) int(input(...)) converts the typed text to an integer.
5. Error 1: Print must be lowercase print. Error 2: the if line needs a colon: if score > 90:
6. B. 85 is not ≥ 90 , but is ≥ 80 , so the elif branch runs.
7. def greet(name): return "Hello, " + name. Example: print(greet("Ada")) prints Hello, Ada.
8. B) banana. List indexes start at 0, so index 1 is the second item.
9. It prints 3 times (0, 1, 2). count ends at 3, which stops the loop.
10. PYTHON, then 6. upper() makes capitals; len counts the 6 letters.
11. guess is never asked again inside the loop, so it can never become 7. Fix: add guess = int(input(...)) inside the loop.
12. def is_even(n): return n % 2 == 0. Check: is_even(4) is True, is_even(5) is False.
13. B) 8. student["grade"] looks up the value stored under the key "grade".
14. 15. $1+2+3+4+5 = 15$.
15. age = int(input("Age? ")); if age ≥ 18 : print("Adult") else: print("Under 18"). Accept any correct version.
16. "Not a number!" The int() call raises ValueError, and the except block handles it.
17. B) Binary search. It repeatedly checks the middle, which only works on a sorted list.
18. Rubric: = stores a value in a variable (x = 5); == compares two values and gives True/False (x == 5). Full marks for a correct distinction plus one valid example of each.