Python Fundamentals: Practice Worksheet

Each of the following questions is designed to help you practice and understand basic Python programming concepts. Write your answers below each question.

## 1. Identifiers

Which of the following are valid Python identifiers?  
a) my\_var  
b) 123name  
c) \_temp123  
d) class

Answer:

## 2. Operators

What is the output of the following expression and why?  
a = 10  
b = 5  
print(a // b + a % b)

Answer:

## 3. Datatypes

What will be the datatype of the following?  
x = 3.14  
y = "123"  
z = True  
print(type(x), type(y), type(z))

Answer:

## 4. Strings

Write a Python program to:  
- Take a user input string  
- Convert it to uppercase  
- Print the reverse of the string

Answer:

## 5. List

Given the list:  
fruits = ["apple", "banana", "cherry"]  
Write code to:  
- Add "orange" to the list  
- Remove "banana"  
- Print the second item

Answer:

## 6. List (Indexing & Slicing)

What will be the output of:  
my\_list = [10, 20, 30, 40, 50]  
print(my\_list[1:4])  
print(my\_list[-2])

Answer:

## 7. Tuple

Write a Python program that creates a tuple with 4 elements.  
Try changing one element — what happens and why?

Answer:

## 8. Set

Given two sets:  
set1 = {1, 2, 3}  
set2 = {3, 4, 5}  
Write Python code to:  
- Find union  
- Find intersection  
- Add an element `6` to `set1`

Answer:

## 9. Dictionary (Basic)

Create a dictionary with keys: name, age, city.  
Print the value of each key. Then update the city to a new value.

Answer:

## 10. Dictionary (Looping)

Given a dictionary:  
scores = {"Alice": 90, "Bob": 85, "Charlie": 78}  
Write a program to print each student’s name and score using a loop.

Answer:

## 11. Conditional Programming (if)

Write a Python program that takes a number as input and prints whether it is positive, negative, or zero.

Answer:

## 12. Conditional (if-elif-else)

Write a program to check if a user’s age qualifies for:  
- Minor (<18)  
- Adult (18–60)  
- Senior (>60)

Answer:

## 13. Conditional (Nested)

Write a program that takes two numbers and prints:  
- "A is greater" if A > B  
- "B is greater" if B > A  
- "Equal" if both are same  
Also print whether the greater number is even or odd.

Answer:

## 14. Mixing Datatypes and Collections

What will be the output of:  
data = {"fruits": ["apple", "banana"], "count": 2}  
print(data["fruits"][0])

Answer:

## 15. Applied Problem (Mini-Project Style)

Create a program that:  
- Takes a list of 5 names from the user  
- Stores them in a list  
- Converts the list to a tuple  
- Checks if a given name (input) is in the tuple or not  
- If found, print position

Answer:

Additional:

**1. Positive, Negative or Zero**

**Q:**  
Write a program that asks the user to enter a number and prints whether it is **positive**, **negative**, or **zero**.

**2. Age Category Checker**

**Q:**  
Write a program to take a person's age and categorize them as:

* "Child" (age < 13)
* "Teen" (13–19)
* "Adult" (20–59)
* "Senior" (60 and above)

**3. Largest of Three Numbers**

**Q:**  
Ask the user to input 3 numbers. Use conditional statements to print which number is the **largest**.

**4. Grading System**

**Q:**  
Write a program that takes a score (0 to 100) and prints the grade:

* 90–100: A
* 80–89: B
* 70–79: C
* 60–69: D
* <60: F