

Solution 01: Python Variables and Types

1) Variable name vs value

- Variable name: `favorite_food`
 - Value: `"ice cream"`
-

2) Create three variables

```
age = 12
height = 1.52
student = "Mia"
```

3) Match variable names and values

- `x` stores the value: `5`
 - `y` stores the value: `7`
 - `message` stores the value: `"Hi"`
-

4) What are the types?

1. `a` is `int`
 2. `b` is `int`
 3. `c` is `float`
 4. `d` is `str`
 5. `e` is `str`
-

5) True or False

1. `"123"` is a string. **True**
 2. `123` is an integer. **True**
 3. `3.0` is a float. **True**
 4. `"3.0"` is a float. **False** (it is a string because of quotes)
-

6) Make it the type you want

Example answers:

- Make `x` a float:

```
x = 7.0
```

- Make `x` a string:

```
x = "7"
```

7) What does this print?

```
name = "Alex"  
print(name)
```

Output:

```
Alex
```

8) Print text + a variable

```
student = "Chelsea"  
print("Student:", student)
```

Output:

```
Student: Chelsea
```

9) Print two lines

```
food = "pizza"
number = 3
print(food)
print(number)
```

Output:

```
pizza
3
```

10) Print multiple values on one line

```
x = 2
y = 10
print("x =", x, "y =", y)
```

Output:

```
x = 2 y = 10
```

11) What is the difference?

```
animal = "cat"
print(animal)
print("animal")
```

Output:

```
cat
animal
```

- `animal` (no quotes) prints: the value inside the variable (`cat`)
- `"animal"` (with quotes) prints: the text `animal`

12) Spot the mistake (strings need quotes)

Corrected code:

```
name = "Chelsea"
print(name)
```

13) What does this print?

```
x = 3
y = 3.0
z = "3"

print(type(x))
print(type(y))
print(type(z))
```

Output:

```
<class 'int'>
<class 'float'>
<class 'str'>
```

14) Types practice

```
score = 95
pi = 3.142
word = "Python"
```

- `type(score)` is `<class 'int'>`
- `type(pi)` is `<class 'float'>`
- `type(word)` is `<class 'str'>`

(Equivalently: `score` is `int`, `pi` is `float`, `word` is `str`.)

15) Make a simple “profile”

One possible solution:

```
name = "Mia"
age = 12
height = 1.52

print("Name:", name)
print("Age:", age)
print("Height:", height)
```

Output:

```
Name: Mia
Age: 12
Height: 1.52
```

16) Challenge: Print types and values

One possible solution:

```
a = 5
b = 2.5
c = "5"

print(a, type(a))
print(b, type(b))
print(c, type(c))
```

One possible output:

```
5 <class 'int'>
2.5 <class 'float'>
5 <class 'str'>
```