

# Weekly Homework — Week 01, Term 1

PM1 Test Prep — Foundations Practice Problems

Programming Module 1 | Applied Computing Australia

Name	Date
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## Part A: Predict the Output

What will each code snippet print? Write your answer before checking. Trace through the code line by line.

### A1. Floor division and modulus

```
x = 10
y = 3
print(x // y)
print(x % y)
```

Output:

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### A2. String length and concatenation

```
name = "Python"
print(len(name))
print(name + "3")
```

Output:

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### A3. String concatenation (not addition!)

```
a = "5"
b = "3"
print(a + b)
```

Output:

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### A4. Integer addition

```
a = 5
b = 3
print(a + b)
```

Output:

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### A5. Percentage discount

```
price = 100
discount = 0.2
final = price * (1 - discount)
print(final)
```

Output:

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### A6. Comparison operators

```
x = 7
print(x > 5)
print(x == 7)
print(x != 7)
```

Output:

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**Part B: Find the Error**

Each snippet has a bug. Identify the error and explain the fix.

**B1. input() returns a string**

```
age = input("Enter your age: ")
next_year = age + 1
print("Next year you will be", next_year)
```

**Error:**

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**Fix:**

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**B2. Missing quotes**

```
print(Hello World)
```

**Error:**

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**Fix:**

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**B3. String + integer concatenation**

```
score = 85
message = "Your score is " + score
print(message)
```

**Error:**

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**Fix:**

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**B4. Invalid variable name**

```
2nd_place = "Silver"
print(2nd_place)
```

**Error:**

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**Fix:**

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**Part C: Fill in the Blanks**

Complete the code by filling in each blank (\_\_\_\_).

**C1. Ask for a number and print its square**

```
num = ____ (input("Enter a number: "))
square = num ____ 2
print("The square is", ____)
```

**C2. Calculate total price with 10% GST**

```
price = 50
gst_rate = ____
total = price * (1 + ____ )
print("Total with GST: $", ____)
```

**C3. Check if temperature is below freezing**

```
temp = -5
is_freezing = temp ____ 0
print("Below freezing?", ____)
```

### Part D: Write the Code

Write complete programs from scratch. Use correct indentation and snake\_case variable names.

#### D1. Rectangle Area Calculator

Ask the user for the length and width of a rectangle (as integers). Calculate and print the area.

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#### D2. Temperature Converter

Ask the user for a temperature in Celsius (can be decimal). Convert to Fahrenheit using:  $F = C \times 9/5 + 32$ . Print the result.

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#### D3. Solar Savings Calculator

Ask the user for:

- Their quarterly electricity bill (as a decimal/float)
- The percentage they expect to save with solar (as a whole number, e.g. 75 for 75%)

Calculate and print:

- Annual savings
- Whether the annual savings is greater than \$1000 (True/False)

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### Part E: Type Analysis

What is the type of each expression? (str, int, float, bool)

Expression	Type
"42"	
42	
42.0	
10 / 2	
10 // 2	
10 > 5	
int("42")	
str(42)	
input("x: ")	