

Mock Exam Problems (Lab section, Oct 05)

1 What Would Python Display?

For each of the expressions in the table below, write the output displayed by the interactive Python interpreter when the expression is valued. The output may have multiple lines. Each expression has at least one line of output.

- If an error occurs, write **Error**, but include all output displayed before the error.
- To display a function value, write **Function**. To display an iterator value, write **Iterator**.
- If an expression would take forever to evaluate, write **Forever**.

The interactive interpreter displays the value of a successfully evaluated expression, unless it is None.

Assume that you have first started python3 and executed the statements on the left.

```
today = 20221005
weekday = lambda d: not weekend(d)
weekend = lambda d: d == 20221008

def print_week(d):
    def print_date():
        if weekday(d):
            print('sad')
        else:
            print('happy')
        return None
    return print_week(d + 1)
return print_date
```

Expression	Output
<code>pow(2, 11) - 26</code>	2022
<code>print(4, 5) + 1</code>	4 5 Error
<code>False and 1 / 0</code>	
<code>print(print(2), 4)</code>	
<code>weekend(20221007)</code>	
<code>today is weekday or weekend</code>	
<code>d = today while weekday(d): print(d) d = d + 2</code>	
<code>printer = print_week(today) while printer: printer = printer()</code>	
<code>weekend = lambda d: True while weekend(today): print(today) today += 1</code>	

2 Environment Diagrams

Fill in the environment diagram that results from executing the code on the right until the entire program is finished, an error occurs, or all frames are filled. **You may not need to use all of the spaces or frames.**

A complete answer will:

- Add missing names and parents to all local frames.
- Add missing values created or referenced during execution, and show the return value for each local frame.

```

1 def hi(f, g):
2     return lambda h: f(g)(h)
3
4 def print_sums(n):
5     print(n)
6     return lambda k: print_sums(n + k)
7
8 result = hi(print_sums, 2021)(1)

```

