

Sample Midterm

These are sample questions that are very similar to the ones I will ask on the midterm. The midterm will be (slightly) longer.

1. Which of the following Python identifiers are legal variable names? For those that are not, say why not.

- (a) `x`
- (b) `Celsius`
- (c) `spam3`
- (d) `<hello>`
- (e) `question?`

2. What is the data type (int, float, string, boolean) of the following? Please evaluate them.

- (a) `3.9 + 6`
- (b) `5 + 1 > 7 or 2 == 1 + 1`
- (c) `int("3")`
- (d) `7 / 2`
- (e) `8 // 3`

3. Write the following formulas in Python.

- (a) a^2
- (b) $\frac{x}{y+z}$
- (c) $12x - \frac{3}{y}$

4. What does the following program print?

```
for i in range(1, 5):
    x = (-1) ** i * i
    print(i, x)
```

5. Convert the following into a “for” loop.

```
i = 1
while i <= 10:
    print(i)
    i += 3
```

6. When I ran the following program:

```
x = int(input("Enter a number: "))
y = 1 / x
print("The reciprocal of", x, "is", y)
```

I got the following error message:

```
Traceback (most recent call last):
  File "x.py", line 2, in <module>
    y = 1 / x
ZeroDivisionError: int division or modulo by zero
```

What was the specific error? Where did it cause the exception? And what did the user type?