



# Exercises 3

☰ Week	Semana 3
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## Drivers License

### Input

- Age
- Letter for Indication: Y, N

### Output

- Yes
- No

### Code

1. Input age as an int and save it in a variable
2. Input yes or no and save it in a variable
3. If...
  - a. Age is higher or equal to 18 and has ID, then is 'Yes'
  - b. Age is higher or equal to 18 and has no ID , then is 'Yes'
  - c. Age is lower to 18 and has ID, then is 'No'.
  - d. Age is lower to 18 and has no ID, then is 'No'.

### Test Cases / Terminal :

- 18 | Y = YES
- 19 | N = YES
- 17 | Y = NO
- 13 | N = N
- abc | abc = Wym (Invalid data)

```

Age: 18
Do you have an ID? yes
Yes
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/
python3.12 /Users/ximyer/Desktop/A-TEC/week3/main.py

Age: 19
Do you have an ID? no
Yes
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/
python3.12 /Users/ximyer/Desktop/A-TEC/week3/main.py

Age: 17
Do you have an ID? yes
No
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/
python3.12 /Users/ximyer/Desktop/A-TEC/week3/main.py

```

## Triangle Type

### Input

- Three integers and save them in 3 variables

### Output

- Equilateral
- Isosceles
- Scalene
- Not a Triangle

**Test Cases / Terminal :**

1. 5, 5, 5 = Equilateral
2. 4, 4, 5 = Isosceles
3. 3, 4, 5 = Scalene
4. 1, 1, 5 = Not a Triangle

```
Python + ▾ [icon] [icon] ...  
✓ TERMINAL  
/usr/local/bin/python3.12 /Users/  
ximyer/Desktop/A-TEC/week3/triang  
le.py  
ximyer@Yeraldins-MacBook-Air week  
● 3 % /usr/local/bin/python3.12 /Us  
ers/ximyer/Desktop/A-TEC/week3/tr  
iangle.py  
Size 1: 5  
Size 2: 5  
Size 3: 5  
EQUILATERAL  
ximyer@Yeraldins-MacBook-Air week  
● 3 % /usr/local/bin/python3.12 /Us  
ers/ximyer/Desktop/A-TEC/week3/tr  
iangle.py  
Size 1: 3  
Size 2: 4  
Size 3: 5  
SCALENE  
ximyer@Yeraldins-MacBook-Air week  
● 3 % /usr/local/bin/python3.12 /Us  
ers/ximyer/Desktop/A-TEC/week3/tr  
iangle.py  
Size 1: 3  
Size 2: 3  
Size 3: 5  
ISOSCELES  
ximyer@Yeraldins-MacBook-Air week  
● 3 % /usr/local/bin/python3.12 /Us  
ers/ximyer/Desktop/A-TEC/week3/tr  
iangle.py  
Size 1: 112  
Size 2: 12  
Size 3: 1  
NOT A TRIANGLE  
ximyer@Yeraldins-MacBook-Air week  
○ 3 % █
```

## Greater than 3:

### Input:

- 3 integers in 3 variables and save them in a dict?
- IF:
  - $a > b, a > c \rightarrow$  the greatest number is: a
  - $b > a, b > c \rightarrow$  the greatest number is: b
  - $c > a, c > b \rightarrow$  the greatest number is: c
  - else: no idea

### Test Cases / Terminal :

- 1, 2, 3  $\rightarrow$  3
- 3, 4, 2  $\rightarrow$  4
- 5, 3, 4  $\rightarrow$  5
- 1, 1, 2  $\rightarrow$  2
- 1, 1, 1  $\rightarrow$  Wrong Data  $\rightarrow$  Wym?

```
✓ TERMINAL Python + ▢ 🗑️ ...

/usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/a.py
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/a.py
Give me a number: 1
Give me a number: 2
Give me a number: 3
The greatest number is: 3
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/a.py
Give me a number: 3
Give me a number: 4
Give me a number: 2
The greatest number is: 4
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/a.py
Give me a number: 5
Give me a number: 3
Give me a number: 4
The greatest number is: 5
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/a.py
Give me a number: 1
Give me a number: 1
Give me a number: 1
Idk wym
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/a.py
Give me a number: 1
Give me a number: 1
Give me a number: 2
The greatest number is: 2
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/a.py
Give me a number: 1
Give me a number: 1
Give me a number: 1
Idk wym
○ ximyer@Yeraldins-MacBook-Air week3 %
```

# Order 3 Numbers

## Input:

- 3 numbers in 3 variables

## Output:

- The 3 numbers from least to greatest

## Process:

1. Input 3 numbers and save them in 3 variables:
2. IF:
3.  $a < b$  and  $a < c \rightarrow a$

## Test Cases / Terminal :

- 1, 2, 3  $\rightarrow$  1, 2, 3
- 1, 3, 2  $\rightarrow$  1, 2, 3
- 2, 1, 3  $\rightarrow$  1, 2, 3
- 2, 3, 1  $\rightarrow$  1, 2, 3
- 3, 1, 2  $\rightarrow$  1, 2, 3
- 3, 2, 1  $\rightarrow$  1, 2, 3
- 1, 1, 2,  $\rightarrow$  1, 1, 2
- 1, 1, 1  $\rightarrow$  Wym? Wrong data

```
✓ TERMINAL Python + ▢ ▢ ...  
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/a.py  
Number 1: 1  
Number 2: 2  
Number 3 : 3  
1  
2  
3  
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/a.py  
Number 1: 1  
Number 2: 3  
Number 3 : 2  
1  
2  
3  
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/a.py  
Number 1: 2  
Number 2: 1  
Number 3 : 3  
1  
2  
3  
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/a.py  
Number 1: 2  
Number 2: 3  
Number 3 : 1  
1  
2  
3  
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/a.py  
Number 1: 3  
Number 2: 1  
Number 3 : 2  
1  
2  
3  
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/a.py  
Number 1: 3  
Number 2: 2  
Number 3 : 1  
1  
2  
3
```



# Body Mass Index

## Input

- Weight
- Height

## Output

- Description of IMC

## Process

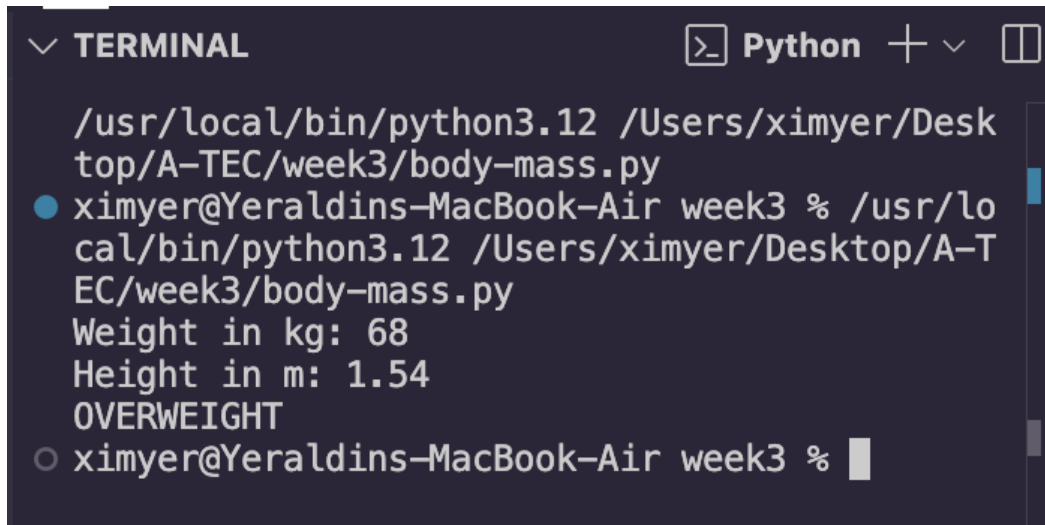
1. Ask for weight and save it in a variable.
2. Ask for height and save it in a variable.
3. Use the formula:  $\text{index} = \text{weight} / \text{height}^2$
4. Based on the result of index, write the possible scenarios.
5. IF:
  - a.  $\text{index} < 20$ . 'LOW WEIGHT'
  - b.  $20 \leq \text{index} < 25$  'NORMAL'
  - c.  $25 \leq \text{index} < 30$  'OVERWEIGHT'
  - d.  $30 \leq \text{index} < 40$  'OBESITY'
  - e.  $40 \geq \text{index}$  'MORBID OBESITY'
6. Print the valid scenario.

## Test Cases / Terminal :

- 44, 1.56 → LOW WEIGHT
- 85, 2.0 → NORMAL
- 68, 1.54 → OVERWEIGHT
- 50, 1.10 → MORBID OBESITY

- aa, aa → Wym? Wrong data

## Terminal

A terminal window titled 'TERMINAL' with a 'Python' icon and window controls. It shows the execution of a script at /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/body-mass.py. The script prompts for weight and height, and outputs 'OVERWEIGHT'.

```
✓ TERMINAL Python + - □  
  
/usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/body-mass.py  
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/body-mass.py  
Weight in kg: 68  
Height in m: 1.54  
OVERWEIGHT  
○ ximyer@Yeraldins-MacBook-Air week3 %
```

## Leap Year

### Input:

- A number (year)

### Output:

- True or False if it's divisible /4.

### Process:

1. Input a year and save it in a variable 'year'.
2. IF:
  - a. year is divisible over 4, but not 100 is TRUE
  - b. else print FALSE

### Test Cases / Terminal :

- 2004: LEAP
- 2005: NO
- 2006: NO
- 2007: NO
- 2008: YES
- aslidjalksd, Wym? Wrong data

✓ **TERMINAL**

Python + ▾ □

```
/usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/leap-year.py
```

```
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/leap-year.py
```

```
Year: 2004
```

```
True
```

```
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/leap-year.py
```

```
Year: 2005
```

```
False
```

```
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/leap-year.py
```

```
Year: 2006
```

```
False
```

```
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/leap-year.py
```

```
Year: 2007
```

```
False
```

```
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/leap-year.py
```

```
Year: 2008
```

```
True
```

```
○ ximyer@Yeraldins-MacBook-Air week3 % █
```

# Next Day

## Input:

- Year
- Month
- Day

## Output:

- Next Day (based on the date input)

## Process:




1. Input year as an int and save it in a variable
2. Input month as an int and save it too
3. Input day and save it too
4. IF:
5. month == 1 and month == 3 and month == 5 and month == 7 and month == 9 and month == 11:
  - a. day = 31

## Test Cases / Terminal :

- 2024, 10, 31 → 2024, 11, 1
- 1959, 6, 15 → 1959, 6, 16
- 1987, 4, 30 → 1987, 5, 1
- 1872, 4, 16 → 1872, 4, 17
- 2004, 2, 28 → 2004, 2, 29

- 2005, 2, 28 → 2005, 3, 1
- 1999, 12, 31 → 2000, 1, 1
- idjasd, sldjasd, asdjasd → Wym? Wrong data

▼ **TERMINAL**

 **Python** + ▼   ...

```
/usr/local/bin/python3.12 /Users/ximyer/
Desktop/A-TEC/week3/next-day.py
```

```
● ximyer@Yeraldins-MacBook-Air week3 % /u
sr/local/bin/python3.12 /Users/ximyer/D
esktop/A-TEC/week3/next-day.py
```

```
Year: 2024
```

```
Month: 10
```

```
Day: 31
```

```
2024
```

```
11
```

```
1
```

```
● ximyer@Yeraldins-MacBook-Air week3 % /u
sr/local/bin/python3.12 /Users/ximyer/D
esktop/A-TEC/week3/next-day.py
```

```
Year: 1959
```

```
Month: 6
```

```
Day: 15
```

```
1959
```

```
6
```

```
16
```

```
● ximyer@Yeraldins-MacBook-Air week3 % /u
sr/local/bin/python3.12 /Users/ximyer/D
esktop/A-TEC/week3/next-day.py
```

```
Year: 1987
```

```
Month: 4
```

```
Day: 30
```

```
1987
```

```
5
```

```
1
```

```
● ximyer@Yeraldins-MacBook-Air week3 % /u
sr/local/bin/python3.12 /Users/ximyer/D
esktop/A-TEC/week3/next-day.py
```

```
Year: 1872
```

```
Month: 4
```

```
Day: 16
```




```
1872
```

```
4
```

```
17
```

```
○ ximyer@Yeraldins-MacBook-Air week3 % █
```

✓ **TERMINAL**

 **Python** + ▾   ...

```
/usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/next-day.py
```

- ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/next-day.py

```
Year: 2004
```

```
Month: 2
```

```
Day: 28
```

```
2004
```

```
2
```

```
29
```

- ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/next-day.py

```
Year: 2005
```

```
Month: 2
```

```
Day: 28
```

```
2005
```

```
3
```

```
1
```

- ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/next-day.py

```
Year: 1999
```

```
Month: 12
```

```
Day: 31
```

```
2000
```

```
1
```

```
1
```

- ximyer@Yeraldins-MacBook-Air week3 %



# Rock, Paper, Scissors

## Input:

- Ana's turn and save it as a variable.
- Jane's turn and save it as a variable

## Output:

- Who wins
- Who loses
- It's a tie?

## Process:

1. Input Ana's game and save it in a variable
2. Input Jane's game and save it in a variable.
3. IF:
  - a.  $\text{ana} = \text{a}$  and  $\text{jane} = \text{p} \rightarrow \text{ana wins}$
  - b.  $\text{ana} = \text{a}$  and  $\text{jane} = \text{t} \rightarrow \text{ana wins}$
  - c.  $\text{ana} = \text{p}$  and  $\text{jane} = \text{a} \rightarrow \text{ana wins}$
  - d.  $\text{ana} = \text{p}$  and  $\text{jane} = \text{t} \rightarrow \text{ana loses}$
  - e.  $\text{ana} = \text{t}$  and  $\text{jane} = \text{a} \rightarrow \text{ana loses}$
  - f.  $\text{ana} = \text{t}$  and  $\text{jane} = \text{p} \rightarrow \text{ana wins}$

## Test Cases / Terminal:

- $\text{ana} = \text{a}$  and  $\text{jane} = \text{p} \rightarrow \text{ana wins}$
- $\text{ana} = \text{a}$  and  $\text{jane} = \text{t} \rightarrow \text{ana wins}$

- $\text{ana} = p \text{ and } \text{jane} = a \rightarrow \text{ana wins}$
- $\text{ana} = p \text{ and } \text{jane} = t \rightarrow \text{ana loses}$
- $\text{ana} = t \text{ and } \text{jane} = a \rightarrow \text{ana loses}$
- $\text{ana} = t \text{ and } \text{jane} = p \rightarrow \text{ana wins}$

```
✓ TERMINAL Python + ▢ 🗑️ ...  
/usr/local/bin/python3.12 /Users/ximyer/  
Desktop/A-TEC/week3/a.py  
● ximyer@Yeraldins-MacBook-Air week3 % /u  
sr/local/bin/python3.12 /Users/ximyer/D  
esktop/A-TEC/week3/a.py  
Your game, Ana? a  
Your game, Juan? a  
Tie  
● ximyer@Yeraldins-MacBook-Air week3 % /u  
sr/local/bin/python3.12 /Users/ximyer/D  
esktop/A-TEC/week3/a.py  
Your game, Ana? t  
Your game, Juan? p  
Ana Wins!  
● ximyer@Yeraldins-MacBook-Air week3 % /u  
sr/local/bin/python3.12 /Users/ximyer/D  
esktop/A-TEC/week3/a.py  
Your game, Ana? p  
Your game, Juan? t  
Juan Wins!  
● ximyer@Yeraldins-MacBook-Air week3 % /u  
sr/local/bin/python3.12 /Users/ximyer/D  
esktop/A-TEC/week3/a.py  
Your game, Ana? p  
Your game, Juan? p  
Tie  
● ximyer@Yeraldins-MacBook-Air week3 % /u  
sr/local/bin/python3.12 /Users/ximyer/D  
esktop/A-TEC/week3/a.py  
Your game, Ana? t  
Your game, Juan? a  
Juan Wins!  
● ximyer@Yeraldins-MacBook-Air week3 % /u  
sr/local/bin/python3.12 /Users/ximyer/D  
esktop/A-TEC/week3/a.py  
Your game, Ana? a  
Your game, Juan? t  
Ana Wins!  
○ ximyer@Yeraldins-MacBook-Air week3 %
```

# Position of a point with respect to the circumference

## Input:

- Radius of the circle
- Coordinate points of the center of the circle
- Coordinates of a point

## Output:



- A string that represents the position of the point with respect to the circumference.

## Process:

1. Input the numbers I'll need as *floats* and save them in variables.
2. `distance =  $\sqrt{(x2 - x1)^2 + (y2 - y1)^2}$`
3. IF:
  - a. `distance < radius` → Print IN
  - b. `distance == radius` → Print ON
  - c. `distance > radius` → Print OUTSIDE

## Test Case / Terminal

✓ **TERMINAL**

 **Python** + ✓   ...

```
/usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/radius.py
```

- ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/radius.py

```
Radius: 7
```

```
Coordinate x of the center of the circumference: 0
```

```
Coordinate y of the center of the circumference: 0
```

```
X-coordinate of the point: 1
```

```
Y-coordinate of the point (floating)8
```

```
OUTSIDE
```

- ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/radius.py

```
Radius: 5
```

```
Coordinate x of the center of the circumference: 0
```

```
Coordinate y of the center of the circumference: 1
```

```
X-coordinate of the point: 4
```

```
Y-coordinate of the point (floating)2
```

```
INSIDE
```

- ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/radius.py

```
Radius: 7
```

```
Coordinate x of the center of the circumference: 0
```

```
Coordinate y of the center of the circumference: 0
```

```
X-coordinate of the point: 0
```

```
Y-coordinate of the point (floating)7
```

```
ON
```

- ximyer@Yeraldins-MacBook-Air week3 %

# From Centimeters to Kilometers, Meters and Centimeters

## Input:

- Distance in cm

## Output:



- Equivalent in km
- Equivalent in m
- Equivalent in cm

## Process:

1. Input the distance in cm as a float and save in in a variable.
- 2.

## Test Cases / Terminal :

✓ **TERMINAL**

 **Python** + ✓   ...

```
/usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/a.py
```

- ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/a.py

```
Distance in cm: 100  
1 m
```

- ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/a.py

```
Distance in cm: 240005  
2 km  
400 m  
5 cm
```

- ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/a.py

```
Distance in cm: 67  
67 cm
```

- ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/a.py

```
Distance in cm: 300004  
3 km  
4 cm
```

- ximyer@Yeraldins-MacBook-Air week3 %

# Compare Dates

## Input:

- Day 1
- Month 1
- Day 2
- Month 2

## Output:

- Which date comes first?

## Process:




1. Input the days, and months respectively and save them in variables
2. IF:
  - a. `month1 < month2` :
    - i. Print DATE 1 COMES FIRST
  - b. `month2 < month1`:
    - i. Print DATE 2 COMES FIRST
  - c. `month1 == month2` :
    - i. IF
      1. `day1 < day2`:
      2. PRINT DATE 1 COMES FIRST
    - ii. else
    - iii. Print DATE 2 COMES FIRST.



**Test Cases / Terminal :**

- 30,4 and 16,4 → Date 2 comes first
- 15, 6 and 28, 6 → Date 1 comes first
- 29,3 and 7,7 → Date 1 comes first
- 1,11, and 1,1 → Date 2 comes first

✓ **TERMINAL**

 **Python** + ▾   ...

```
/usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/dates.py
```

- ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/dates.py

```
Day 1: 30
```

```
Month 1: 4
```

```
Day 2 16
```

```
Month 2: 4
```

```
Date 2 occurs first
```

- ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/dates.py

```
Day 1: 15
```

```
Month 1: 6
```

```
Day 2 30
```

```
Month 2: 6
```

```
Date 1 occurs first
```

- ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/dates.py

```
Day 1: 29
```

```
Month 1: 3
```

```
Day 2 7
```

```
Month 2: 7
```

```
Date 1 occurs first.
```

- ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/dates.py

```
Day 1: 1
```

```
Month 1: 11
```

```
Day 2 1
```

```
Month 2: 1
```

```
Date 2 occurs first
```

- ximyer@Yeraldins-MacBook-Air week3 %

# Quadrant

## Input:

- An integer between 0 and 360

## Output:

- The location in the quadrant (if any)

## Process:

1. Ask for the integer and save it in a variable.
2. IF:
  - a. `integer == 0 or integer == 90 or integer == 180 or integer == 270 or integer == 360` → print AXIS
  - b. `integer < 0 and integer > 360` → print EXCEEDS
  - c. `1 <= integer <= 89` → print QUADRANT 1
  - d. `91 <= integer <= 179` → print QUADRANT 2
  - e. `181 <= integer <= 269` → print QUADRANT 3
  - f. `271 <= integer <= 359` → print QUADRANT 4

## Test Cases / Terminal :

▼ TERMINAL

Python + ▢ ▢ ...

```
/usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/quadrant.py
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/quadrant.py
Degrees: -43
Exceeds
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/quadrant.py
Degrees: 0
Axis
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/quadrant.py
Degrees: 16
Quadrant 1
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/quadrant.py
Degrees: 90
Axis
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/quadrant.py
Degrees: 123
Quadrant 2
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/quadrant.py
Degrees: 180
Axis
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/quadrant.py
Degrees: 256
Quadrant 3
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/quadrant.py
Degrees: 270
Axis
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/quadrant.py
Degrees: 306
Quadrant 4
○ ximyer@Yeraldins-MacBook-Air week3 %
```

# Quadratic:

## Input:

- Integer 1
- Integer 2
- Integer 3

## Output

- The value of x1 and x2
- No Solution
- Complex roots

## Process:

1. If  $a == 0$  and  $b == 0$ :
  - a. print  $\rightarrow$  NO SOLUTION
2. If  $a = 0$  and  $b \neq 0$ :
  - a.  $x = (-c / b)$

$$x1 = -b + (\text{math.sqrt}((b**2) - (4*a*c)) / (2*a))$$

$$x2 = -b - (\text{math.sqrt}((b**2) - (4*a*c)) / (2*a))$$

## Test Cases / Terminal :

- $a=1, b=2, c=3 \rightarrow$  complex roots

- $a = 0, b = 1, c = 2, x = -2.0$
- $a = 1, b = 5, c = 6 \rightarrow x_1 = 2.0, x_2 = 3.0$

A terminal window titled 'Python' with standard window controls. It shows three separate runs of a script located at `/Users/ximyer/Desktop/A-TEC/week3/quadratic.py`. Each run starts with a prompt `ximyer@Yeraldins-MacBook-Air week3 %` followed by the command `/usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/quadratic.py`. The script prompts for coefficients `a`, `b`, and `c`. The first run uses `a: 1, b: 2, c: 3` and outputs 'Complex Roots'. The second run uses `a: 0, b: 1, c: 2` and outputs `-2.0`. The third run uses `a: 1, b: 5, c: 6` and outputs `-2.0` and `-5.5`. The terminal ends with a new prompt `ximyer@Yeraldins-MacBook-Air week3 %`.

```

✓ TERMINAL Python + ▢ 🗑️ ...

/usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/quadratic.py
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/quadratic.py
a: 1
b: 2
c: 3
Complex Roots
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/quadratic.py
a: 0
b: 1
c: 2
-2.0
● ximyer@Yeraldins-MacBook-Air week3 % /usr/local/bin/python3.12 /Users/ximyer/Desktop/A-TEC/week3/quadratic.py
a: 1
b: 5
c: 6
-2.0
-5.5
○ ximyer@Yeraldins-MacBook-Air week3 %

```