Problem 1

Variables you create: `a`, `b`, `c`

Create three variables `a`, `b`, and `c` that represent the sides of a right triangle, where `c` is the hypotenuse `c`. You **must** assign 17 and 144 to `a` and `b` (respectively). Calculate the length of the hypotenuse and assign it to `c`.

$a^2 + b^2 = c^2$

* **Note**: your computed value of `c` will be checked in the **hidden** test cell.

[ ]:
```
a = 17
b = 144
c = ( a ** 2 + b ** 2 ) ** 0.5
```

[ ]:
```
# Please do not modify this cell!
# A hidden test for the value of c
```

Problem 2

In the cell below the variables `x`, `y`, `z`, `k` have been created and assigned hidden values.

[ ]:
```
# Please do not modify this cell!
# The variables x, y, and z, k are created in this hidden test cell and have been assigned hidden values
```

In the cell below, you must write codes to ensure that the largest value of the variables `x`, `y`, `z`, `k` is taken to the power of the smallest value among these variables. You should create a variable `answer` and assign it the resulting value.

An example: If `x`, `y`, `z`, `k` were assigned x = 5, y = 2, z = 6, k = 10 in the previous cell, then the value of `answer` (the variable you will create in the cell below) should be 100 since it is the result of 10^2.

[ ]:
```
if x >= y:
    unum = y
    upum = x
    if y >= z:
        unum = z
        if z >= k:
            unum = k
    elif y >= k:
        unum = k
    if z >= x:
        upum = z
        if k >= z:
            upum = k
    elif k >= x:
        upum = k
else:
    unum = x
    upum = y
    if x >= z:
        unum = z
        if z >= k:
            unum = k
    elif x >= k:
        unum = k
    if z >= y:
        upum = z
        if k >= z:
            upum = k
    elif k >= y:
        upum = k
answer = upum ** unum
print(answer)
```

The cell below is to test if your program in the previous cell yielded the correct `answer` given the hidden values of `x`, `y`, `z`, `k`

[ ]:
```
# Please do not modify this cell!
# A hidden test to make sure the biggest value is taken to the power of the smallest value and assigned to the variable answer.
```

Problem 3

You need to calculate the BMI for a student. The weight (in kg) and height (in m) will be given as `weight` and `height`. Compute BMI and assign his/her BMI category to a variable named `cat`.

Additionally, `weight` and `height` are `float`, and `cat` is a `str`.

Hints:

$\text{BMI} = \frac{\text{weight}}{\text{height}^2}$

You may use if statements to classify the BMI into the following categories:

```
cat = "Underweight" if BMI is less than 18.5
cat = "Normal weight" if BMI is 18.5 or more and less than 25
cat = "Overweight" if BMI is 25 or more and less than 30
cat = "Obesity" if BMI is 30 or more
```

[ ]:
```
# Please do not modify this cell!

# The variables weight and height have been created and have been assigned hidden values in this cell
```

[ ]:
```
BMI = weight / (height ** 2)
if BMI >= 30:
    cat = "Obesity"
elif BMI >= 20:
    cat = "Overweight"
elif BMI >= 18.5:
    cat = "Normal weight"
else:
    cat = "Underweight"
```

[ ]:
```
# Please do not modify this cell!

# A hidden test to test if your program in the previous cell yielded the correct cat given the hidden values of weight and height
```

Problem 4

Write a piece of code that will check whether the value stored in the variable `year` is a leap year or not, where the variable `year` has been created and assigned a hidden value. Your task is to create a variable `res` and assign it **True** if `year` is a leap year otherwise **False** if `year` is not a leap year.

* **Note**: A year is considered a leap year if it satisfies the following conditions:

- It is divisible by 4, and
- It is not divisible by 100, unless
- It is also divisible by 400.

[ ]:
```
# Please do not modify this cell!
# The variable year has been created and has been assigned a hidden value in this cell
```

[ ]:
```
if year % 400 == 0:
    res = True
elif year % 100 == 0:
    res = False
elif year % 4 == 0:
    res = True
else:
    res = False
```

[ ]:
```
# Please do not modify this cell!

# A hidden test to test if your program in the previous cell yielded the correct res given the hidden value of year
```