1. What is 7 to the power of 4?

```
base = 7
exponent = 4

result = 1

while exponent != 0:
    result *= base
    exponent-=1

print(str(result))
```

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2. Split this string into a list. s = "Hi there Sam!"

```
text = 'Hi there Sam!'
print(text.split(' '))
```

    ['Hi', 'there', 'Sam!']

3.Given the variables planet = "Earth" diameter = 12742 Use .format() to print the following string
The diameter of Earth is 12742 kilometers.

```
txt = "The diameter of {planet} is {diameter} kilometers".format(planet = "Earth", diamete
print(txt)
```

    The diameter of Earth is 12742 kilometers

4.Given this nested list, use indexing to grab the word "hello lst = [1,2,[3,4],[5,[100,200,
['hello']],23,11],1,7]

```
lst = [1,2,[3,4],[5,[100,200,['hello']],23,11],1,7]
print(lst[3][1][2][0])
```

    hello

5. Given this nested dictionary grab the word "hello". Be prepared, this will be annoying/tricky
d = {'k1':[1,2,3,{'tricky':['oh','man','inception',{'target':[1,2,3,'hello']}]}]}

```
d = {'k1':[1,2,3,{'tricky':['oh','man','inception',{'target':[1,2,3,'hello']}]}]}
print(d['k1'][3]["tricky"][3]['target'][3])
```

```
    hello
```

6.What is the main difference between a tuple and a list? ans: Tuple is immutable, and list is mutable

7.Create a function that grabs the email website domain from a string in the form :
user@domain.com So for example, passing "user@domain.com" would return: domain.com

```
def domainGet(email):
    print("Your domain is: " + email.split('@')[-1])

email = input("Please enter your email: >")
domainGet(email)
```

```
    Please enter your email: >user@domain.com
    Your domain is: domain.com
```

8. Create a basic function that returns True if the word 'dog' is contained in the input string. Don't worry about edge cases like a punctuation being attached to the word dog, but do account for capitalization.

```
def findDog(st):
    if 'dog' in st.lower():
        print("True")
    else:
        print("False")

st = input("Please key a string: >")
findDog(st)
```

```
    Please key a string: >dog
    True
```

9. Use lambda expressions and the filter() function to filter out words from a list that don't start with the letter 's'. For example: seq = ['soup','dog','salad','cat','great'] should be filtered down to: ['soup','salad']

```
seq = ['soup','dog','salad','cat','great']
list(filter(lambda word: word[0]!='s',seq))
```

```
    ['dog', 'cat', 'great']
```

10. You are driving a little too fast, and a police officer stops you. Write a function to return one of 3 possible results: "No ticket", "Small ticket", or "Big Ticket". If your speed is 60 or less, the result is "No Ticket". If speed is between 61 and 80 inclusive, the result is "Small

Ticket". If speed is 81 or more, the result is "Big Ticket". Unless it is your birthday (encoded as a boolean value in the parameters of the function) -- on your birthday, your speed can be 5 higher in all cases.

```python
def caught_speeding(speed, is_birthday):

    if is_birthday:
        speeding = speed - 5
    else:
        speeding = speed

    if speeding > 80:
        return 'Big Ticket'
    elif speeding > 60:
        return 'Small Ticket'
    else:
        return 'No Ticket'


print("Please enter the speed(km/h)(only number please): \n")
speed = int(input("> "))

print("Please enter your birthday: (in DD/MM/YYYY format)\n")
birthday = str(input("> "))

def speeding(speed, birthday):
    if birthday == '29/08/1989':
        s = speed - 5
    else:
        s = speed

    if s <= 60:
        print("You pass.")
    elif s > 61 and s <= 80:
        print("Small Ticket")
    else:
        print("Big Ticket.")

speeding(speed, birthday)
```

```
    Please enter the speed(km/h)(only number please):

    > 70
    Please enter your birthday: (in DD/MM/YYYY format)

    > 11/12/2001
    Small Ticket
```

```python
print("Please enter the speed(km/h)(only number please): \n")
speed = int(input("> "))

print("Please enter your birthday: (in DD/MM/YYYY format)\n")
birthday = str(input("> "))
```

```python
def speeding(speed, birthday):
    if birthday == '29/08/1989':
        s = speed - 5
    else:
        s = speed

    if s <= 60:
        print("You pass.")
    elif s > 61 and s <= 80:
        print("Small Ticket")
    else:
        print("Big Ticket.")

speeding(speed, birthday)
```

```
    Please enter the speed(km/h)(only number please):

    > 120
    Please enter your birthday: (in DD/MM/YYYY format)

    > 11/12/2001
    Big Ticket.
```

✓ **12s**   completed at 10:00 AM   ● ✕