Data Types Exercise

Determine the following data types:

type(1.5)

type(42)

type("a")

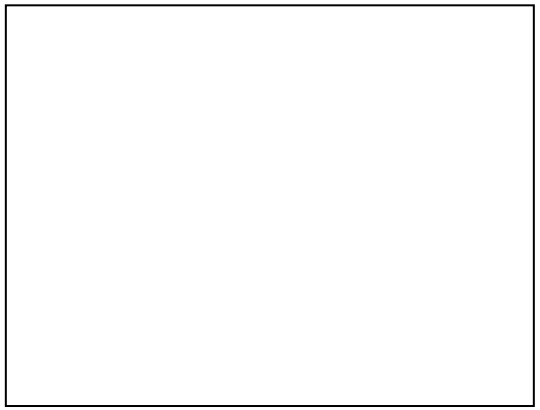
type(42 + 1.5)

type("13")

type("float")

Turtle Graphics Exercise

(1) What does **chai** draw?



```
def chai(size):
    """ mystery! """
    forward(size)
    left(90)
    forward(size/2.0)
    right(90)
    right(90)
    forward(size)
    left(90)
    left(90)
    forward(size/2.0)
    right(90)
    backward(size)
```

List and String Slicing Exercises

```
pi = [3,1,4,1,5,9]        Q = [ 'pi', "isn't", [4,2] ]

message = 'You need parentheses for chemistry !'
          0    4    8    12   16   20   24   28   32
```

Part 1

What is `len(pi)`

What is `len(Q)`

What is `len(Q[1])`

What is `pi[2:4]`

What slice of `pi` is `[3,1,4]`

What slice of `pi` is `[3,4,5]`

Part 2

What is `Q[0]`

What is `Q[0:1]`

What is `Q[0][1]`

What slice of `message` is `'try'`

What is `message[9:15]`

What is `message[::5]`

Extra! Mind Muddlers

What are `pi[0]*(pi[1] + pi[2])` and `pi[0]*(pi[1:2] + pi[2:3])` ?

They're different... !

List and String Slicing Exercises Solution

```
pi = [3,1,4,1,5,9]        Q = [ 'pi', "isn't", [4,2] ]

message = 'You need parentheses for chemistry !'
          0    4    8    12   16   20   24   28   32
```

Part 1

What is `len(pi)` 6

What is `len(Q)` 3

What is `len(Q[1])` 5

What is `pi[2:4]` [4,1]

What slice of `pi` is `[3,1,4]` pi[0:3]

What slice of `pi` is `[3,4,5]` pi[::2]

Part 2

What is `Q[0]` 'pi'

What is `Q[0:1]` ['pi']

What is `Q[0][1]` 'i'

What slice of `message` is `'try'` message[31:34]

What is `message[9:15]` 'parent'

What is `message[::5]` 'yeah cs!'

Extra! Mind Muddlers

What are `pi[0]*(pi[1] + pi[2])` and `pi[0]*(pi[1:2] + pi[2:3])` ?

They're different... ! 15 [1,4,1,4,1,4]