Python Programming

Exercises

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Ex-1

Assume the days of the week are numbered 0,1,2,3,4,5,6 from Sunday to Saturday. Write a program that asks a day number, and prints the day name (a string).

Ex-2

Write a program which is given an exam mark, and it returns a string — the grade for that mark — according to this scheme:

Mark	Grade
>= 75	First
[70-75)	Upper Second
[60-70)	Second
[50-60)	Third
[45-50)	F1 Supp
[40-45)	F2
< 40	F3

Ex-3

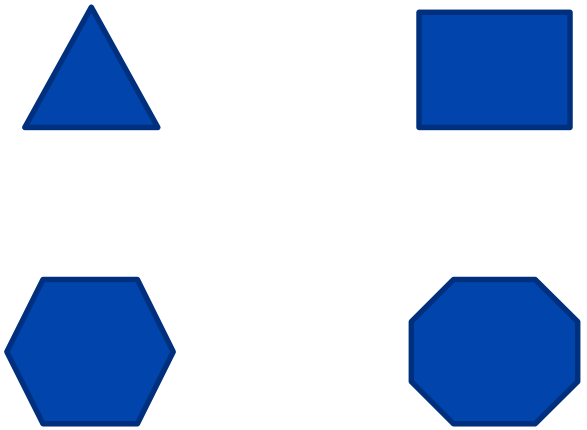
Assume you have the assignment numbers = [12, 10, 32, 3, 66, 17, 42, 99, 20]

1. Write a loop that prints each of the numbers on a new line.
2. Write a loop that prints each number and its square on a new line.
3. Write a loop that adds all the numbers from the list into a variable called total.
4. Print the product of all the numbers in the list. (product means all multiplied together)

Ex-4

Use for loops to make a turtle draw these regular polygons (regular means all sides the same lengths, all angles the same):

1. An equilateral triangle
2. A square
3. A hexagon (six sides)
4. An octagon (eight sides)



Ex-5

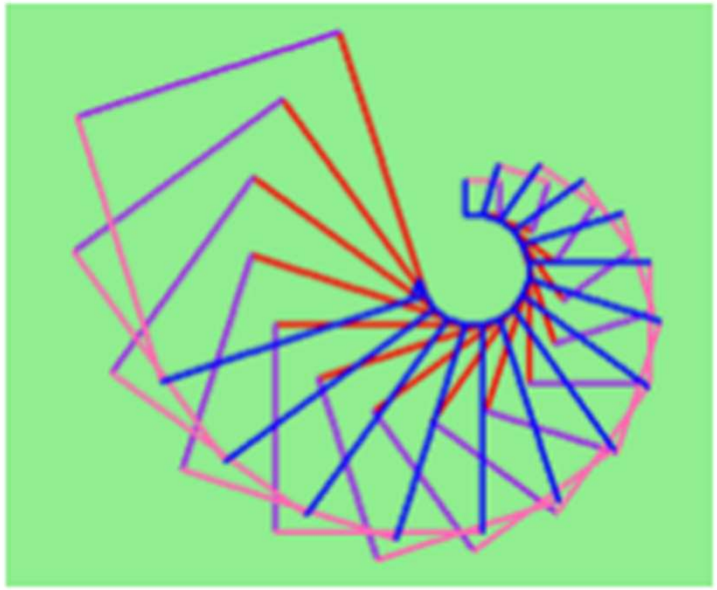
Write a program that counts the number of even digits in n.

Ex-6

Write a program that computes the sum of the squares of the numbers in the list numbers. For example a call with, numbers = [2, 3, 4] should print 4+9+16 which is 29.

Ex-7

Draw with turtle…



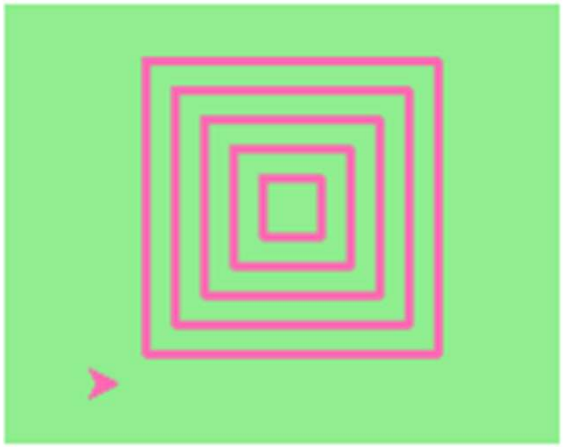
Ex-8

Write a program to calculate the following function:

$$A = P\left(1 + \frac{r}{n}\right)^{nt}$$

Ex-9

Write a program to draw this. Assume the innermost square is 20 units per side, and each successive square is 20 units bigger, per side, than the one inside it.



Ex-10

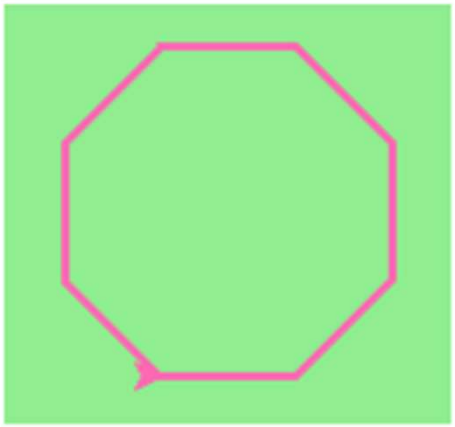
Calculate the distance of two point where each point has two value (x, y). The formula of calculating the distance of two point is like below:

$$distance = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Ex-11

Write a void function draw_poly(t, n, sz) which makes a turtle draw a regular polygon.

When called with draw_poly(tess, 8, 50), it will draw a shape like this:



Ex-12

Write a function that helps answer questions like ‘“Today is Wednesday. I leave on holiday in 19 days time. What day will that be?”’ So the function must take a day name and a delta argument — the number of days to add — and should return the resulting day name:

```
day_add("Monday", 4) ==  "Friday"
day_add("Tuesday", 0) == "Tuesday"
day_add("Tuesday", 14) == "Tuesday"
day_add("Sunday", 100) == "Tuesday"
```

Ex-13

Write a function that takes day(s) and converts it into the second.

Ex-14

Write a function that takes seconds and converts it into the day.

Ex-15

Which of these tests fail? Explain why.

```
3 % 4 == 0
3 % 4 == 3
3 / 4 == 0
3 // 4 == 0
3+4  *  2 == 14
4-2+2 == 0
len("hello, world!") == 13
```

Ex-16

Write a `compare` function that returns `1` if `a > b`, `0` if `a == b`, and `-1` if `a < b`

```
compare(5, 4) == 1
compare(7, 7) == 0
compare(2, 3) == -1
compare(42, 1) == 1
```

Ex-17

Write a function called is_even(n) that takes an integer as an argument and returns True if the argument is an even number and False if it is odd.

Ex-18

Assign to a variable in your program a triple-quoted string that contains your favourite paragraph of text — perhaps a poem, a speech, instructions to bake a cake, some inspirational verses, etc.

Write a function which removes all punctuation from the string, breaks the string into a list of words, and counts the number of words in your text that contain the letter "e". Your program should print an analysis of the text like this:

```
Your text contains 243 words, of which 109 (44.8%) contain an "e".
```

Ex-19

Write a program that takes two numbers and a string with a length of larger that the greater number entered, then returns the characters between two numbers entered.

Ex-20

Write a program that takes two numbers and a string with a length of larger that the greater number entered, then returns the charactersthat are not between two numbers entered.