

Class_assignment_11

1. Chap9-1

The position of a moving particle as a function of time is given by:

$$x = (2 + 4 \cos(t)) \cos(t)$$

$$y = (2 + 4 \cos(t)) \sin(t)$$

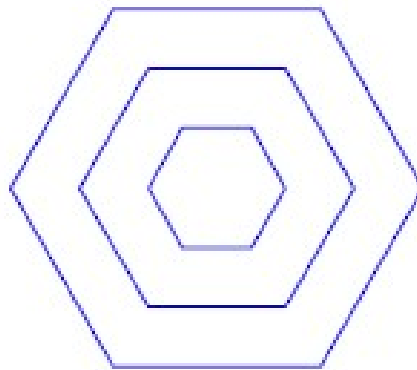
$$z = t^2$$

Plot the position of the particle for $0 \leq t \leq 20$.

2. Moshe Brand>HW >37

Write a function that receives as an input the number of a regular polygon sides (a polygon in which all sides and angles are equal) and the number of polygons. Then the program plots them in a two dimensional graph where the polygons have an equal distance between each other.

An example of three hexagons:



3. Exam 2008 (Moed A)

Write a user-defined function - `flower` - that draws a flower. The input of the function `n` will be the number of flower's petals (petal = עלה כותרת). For the function name and argument use `flower(n)`.

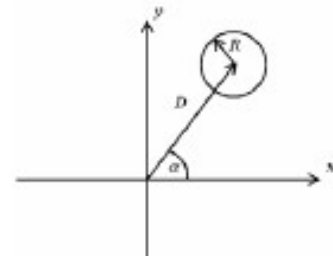
A circle can be described mathematically using the following parameterization:

$$x = D \cos \alpha + R \cos \theta$$

$$y = D \sin \alpha + R \sin \theta$$

$$0 \leq \theta \leq 2\pi,$$

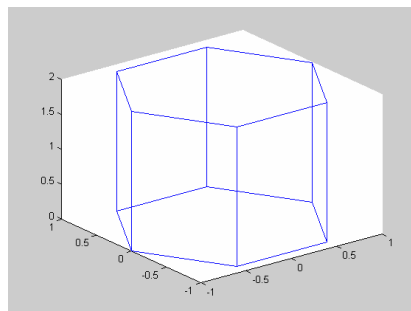
where R , D and α are defined in the drawing.



- (15%) The flower has one green circle in the center with radius = 5.
 - (30%) Around the green circle, there are `n` equally scattered petals. Each petal is represented by a circle with radius = 1 whose center is located at radius = 6. The color of the petals is red.
- Hint:** the center of each petal is shifted to a point which is located at radius = 6 and at different angle.
- (5%): Write a script that calls the user-defined function `flower` with the input `n=10` to draw 10 petals, one petal every 36°. See the example:

4. Moshe Brand > HW > 40

Write a user defined function that draws a straight prism. The inputs of the function will be the number of the sides while the bases of the prism will be equal to `h`. the name of the function will be `minsara`. For example, using the function `minsara(6,2)` will give the following output:



4.

Write a user-defined function that draws a tower of prisms similarly to the previous question.

5.

Write a user-defined function that draws a pyramid of prisms similarly to the previous question.