

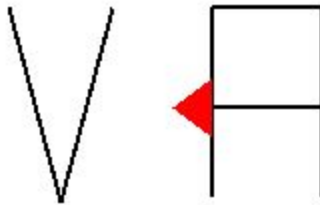
More Drawing Fun with Turtle Simulator

Week 2: 3rd Aug, 2015

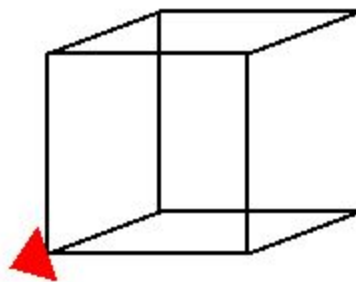
Programming Problems

In today's lab, you are expected to complete the first four tasks. The rest should be done by those who finish early.

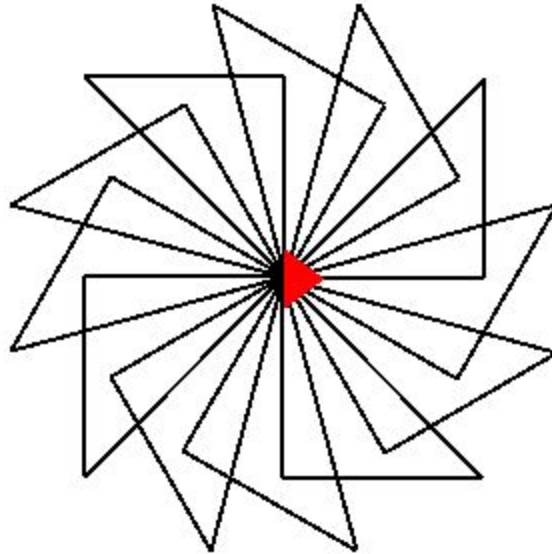
1. Write a turtle program to draw your initials on the canvas. For example, my name is Varsha Apte, so my program must make the following figure on the canvas. Save the program as **initials.cpp**. (15 mins)



2. Write a program to draw a (i) 5-pointed star (ii) 7-pointed star. Save the programs as **5_star.cpp** and **7_star.cpp** respectively. (15 mins)
3. Write a turtle Simulator program to draw below figure Save the file as **cube.cpp**. (30 mins)



4. Write a program that makes a figure (for eg. a triangle), and makes copies of it, rotated about a vertex. Set the number of copies to 12. The following is what it will look like for a right angled triangle made 12 times at different angles Save the file as **12_pattern.cpp**.



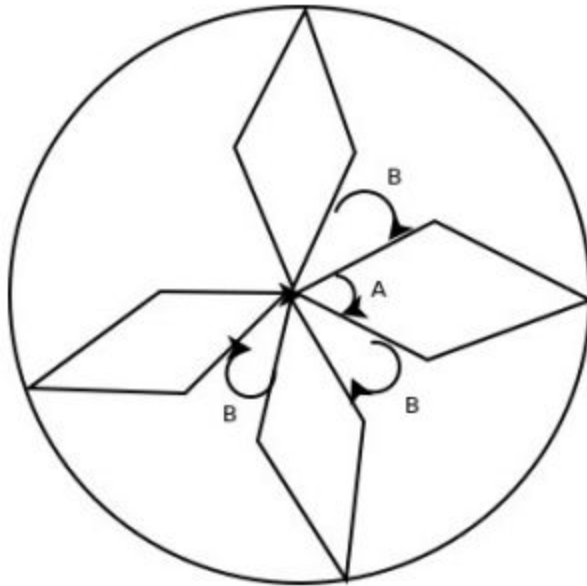
**SUBMISSION INSTRUCTIONS ARE GIVEN ON THE ASSIGNMENT PAGE.
FOLLOW THOSE AND SUBMIT. CALL A JTA FOR HELP IF REQUIRED.**

If you have extra time

1. Write a turtle program to draw a shape as given below. The length of a side and the tip angle (angle A) of a petal are given for the four touching petals inside the circle. (Angle between two petals, $B = 30$). Extend the program to draw three more patterns placed vertically beside each other with value of B varied as ($B = 35, 40, 45$ respectively). All the patterns have circle and petals of same dimensions except that the petals in a pattern are rotated by a given angle (which can be taken as an input) as compared to the one adjacent to it. Save the file as **petals.cpp**.

Length of side of a petal = 10 units

Tip angle (A) = 30



2. Write a code to draw an n -pointed star, taking n as input. Save the program as **n_star.cpp**.

3. Similar to what you did in the program 4 above, now make another program in which the figures are opaque (ie, you cannot see the lines behind a figure). Save the file as **opaque_pattern.cpp**.

4. Draw a pattern consisting of 7 circles of equal radius: one in the center of the program and 6 around it, each outer circle touching the central circle and two others. Try to write the program that minimizes turtle movement. Your program statements should be chosen to exploit the symmetry in the pattern. Save the file as **7_circles.cpp**.