

MATH 213 EXTRA CREDIT ASSIGNMENT

Purpose

FUN and...Section 11.1 has a variety of interesting “line art” shapes in the Just for Fun on page 328.

Assignment

Make ANY colored line art using thread or yarn for 5 – 10 points extra credit applied in the homework quiz portion of your course grade. Very simple art: 5 points, more complex art, up to 10 points.

MATERIALS

- Line Art Platform: Poster board, cardboard or photo mounting board
- Multicolored yarn or string
- Needle that will fit your yarn or string
- Hammer and nail or nail punch (see directions #4)
- Small Washers (see direction #6)
- Copy of circle protractor (Material Card 25) for a circle diagram
- 11' x 17" paper for template (available WOU Math Department)

GATHER MATERIALS

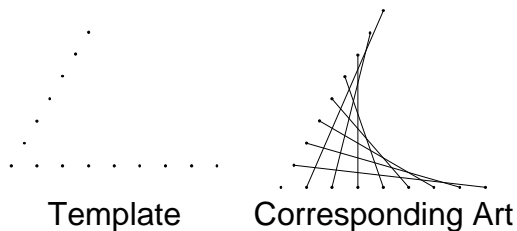
1. Gather your materials; note you will need a very large needle for yarn.

UNDERSTAND THE CONSTRUCTION

2. Carefully read the 11.1 Just for Fun. Decide what sort of line art you would like to make.

MAKE A PAPER TEMPLATE

3. Create your set of points on paper. Suggestion: Create a simple template for your plan using Geometer's Sketchpad. For example, this next figure is simply 10 points, each 1 cm apart, the top set of points rotated 60 degrees and the lines connected. For a template for this art, you would not include the line segments. You can enlarge your template on a copy machine (help available, WOU Math Department). **KEEP** a copy of your template for reference (you will destroy the enlarged version punching holes)



HAND DRAWN CIRCLE TECHNIQUE

Copy the 360 protractor (Material Card 25) and then paste it onto the center of an 11' x 11' piece of white paper (cut down from an 11" x 17" piece). Decide on a distance for the diameter of your image and place a ruler on the protractor from the center of the paper to locate the points.

MOUNT TEMPLATE / PUNCH HOLES

4. Once you have your template / set of points, tape the sheet of paper onto the mounting platform and with a hammer and nail pound a hole through each point on the sheet and through the platform (use a backing that is ok to have nail marks in it!). The size of the nail for forming the holes depends on the size of the needle and thread or yarn you will be using. When you are done, carefully remove your template (don't mess up the posterboard).

MEASURE THREAD OR YARN

5. Measure the straight line distance from the beginning point to the second point on your path so you can determine the **TOTAL LENGTH OF THE STRING** or **YARN** needed to form a continuous path. You may want to use multicolored thread or yarn.

THREAD YARN OR STRING

6. Begin on the bottom side of the platform at one of the holes and push the needle up to the front.

YARN USERS

If you are using yarn or heavy string you can knot the string so it will not come through the hole. For subsequent holes you will still need washers or some other way to keep the thread anchored below the platform—see Thread Users.

THREAD USERS

If you are using thread, you may need something to anchor the thread on the bottom side. A very small washer is perfect for this. Now you are off and running and you push the needle down through the next point to the bottom side of the "platform". However, now you need something to keep the tread anchored below the second hole. Another washer is perfect for this. So just buy as many very small washers as you have points, and you will be all set. In place of washers, you could make washers by hole punching small 1/2 by 1/2 inch squares of poster board.