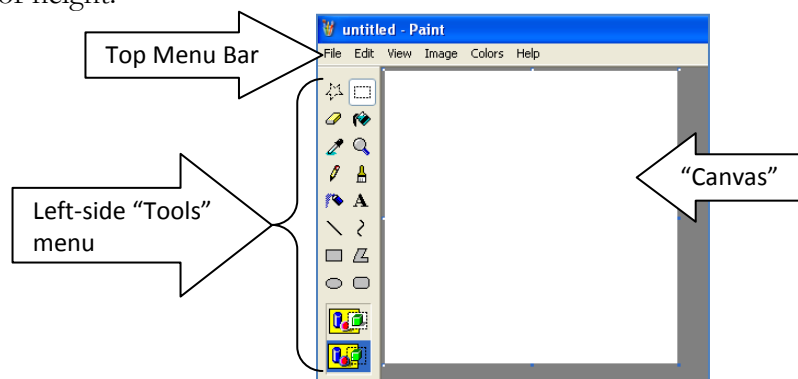# Creating Complex Lines with MS Paint

MS Paint is a free graphics program included in all versions of Microsoft Windows. This handout will explain how to create complex lines of partition using this software.

The contents of this pamphlet includes the following instructions:

Helpful MS Paint Info:

- Control-Z will undo the last command. You can only undo the last 3 changes!
- Control-Y will repeat the last command.
- Control-E allows you to change the size of the canvas.
- Control-W allows you to shrink or stretch the selected item by a percentage (%) of its width and/or height.

Top Menu Bar

Left-side "Tools" menu

"Canvas"

untitled - Paint

File Edit View Image Colors Help

I save my graphics in TIFF and PNG format. When used with MS Paint, these file types are "lossless," meaning the image quality will not degrade when you edit and re-save them. JPEG and GIF are "lossy" formats, meaning they lose resolution when you edit and re-save them.

I. WAVY

1. Click on the circle tool on the left menu.
2. Hold the Shift key down, then click and drag across the canvas to create a perfect circle:
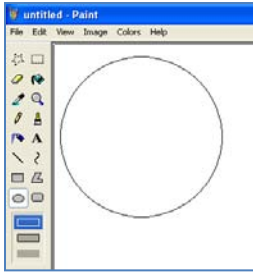
3. Click the rectangular select tool on the left menu, and click the invisible background selection at the bottom of the Tools menu
4. Select a little more than the top half of the circle and hit the Delete key.
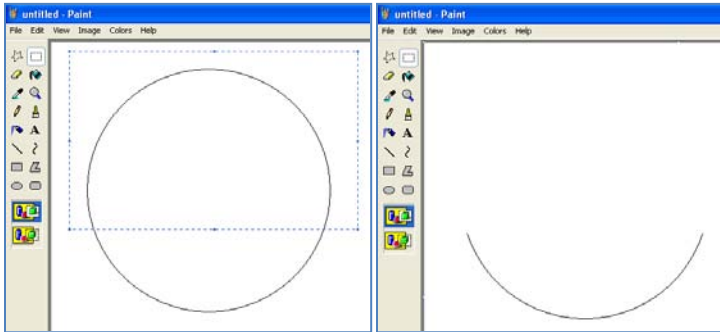
5. Select the remaining lower portion of the circle and hit Control-C to copy.
6. Hit Control-V to paste, then Control-R to "flip vertical".
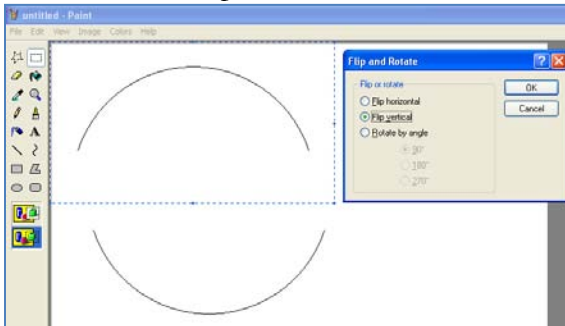
7. Move the new portion to the right, overlapping the ends of the semi-circles, then click on an empty portion of the canvas to leave it there:
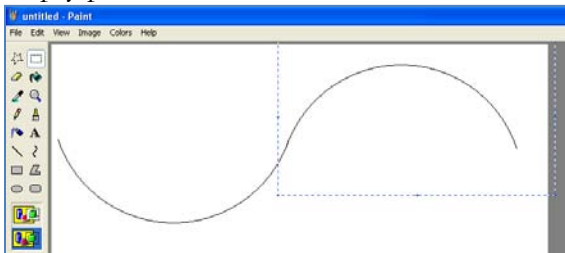
8. Hit Control-A to select all of the canvas and hit Control-C to copy it.
9. Hit Control-V to paste the copied image. If your canvas isn't big enough, you may need to hit Control-E to make it wider.
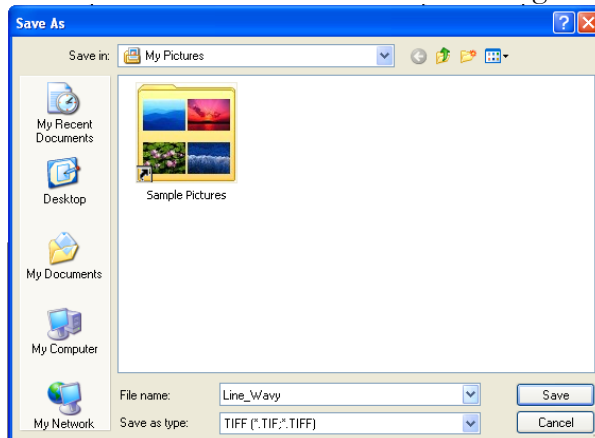10. Hit Control-R and flip the copy horizontally:
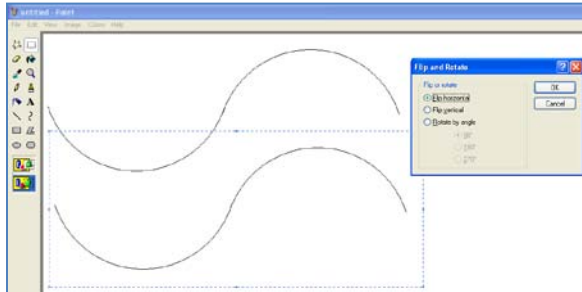
11. Overlap the last semi-circle with the pasted image and click on an empty portion of the canvas to leave it there (the overlapping ensures that the spacing stays even):
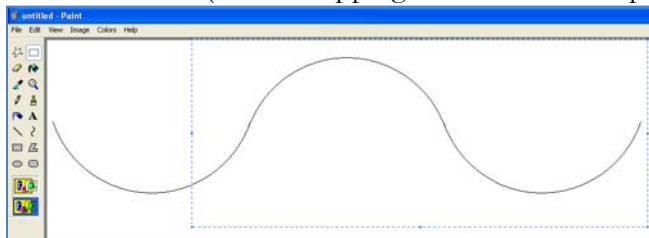
12. Select the entire image.
13. Hit Control-C to copy.
14. Hit Control-V to paste.
15. Overlap the last semi-circle of the original image with the new pasted image and click on an empty portion of the canvas to leave it there:
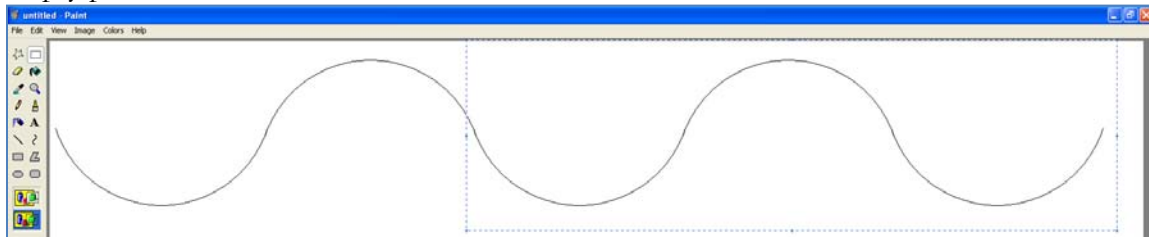
16. Repeat steps 9-12 until you feel like you have enough "bumps".
17. Click "File" and "Save As" to save the image with a name like "Line_Wavy".

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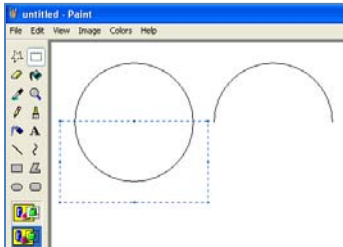
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II. INVECTED

1. Click on the circle tool on the left menu.
2. Hold the Shift key down, then click and drag across the canvas to create a perfect circle:
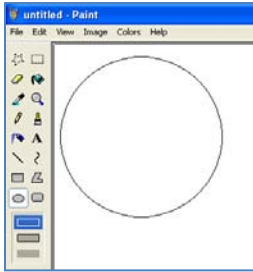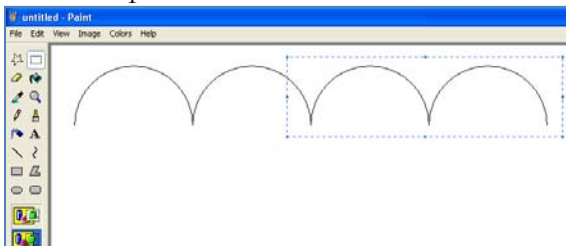

3. Click the rectangular select tool on the left menu, and click the invisible background selection at the bottom of the Tools menu
4. Select the bottom half of the circle and hit the Delete key to remove it:

5. Select the remaining top half of the circle and hit Control-C to copy it.
6. Hit Control-V to paste the copy, overlap the ends of the semi-circles, and click elsewhere on the canvas to leave it in place:
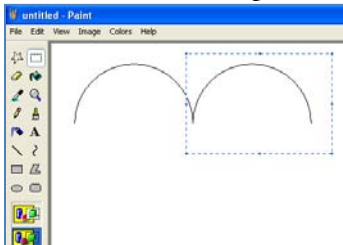

7. Select the entire picture and hit Control-C to copy it.
8. Hit Control-V to paste, overlap the ends of the semicircles, and click elsewhere on the canvas to leave it in place:

9. Repeat steps 7-8 until you have enough "bumps."
10. Click "File" and "Save As" to save the image with a name like "Line_Invected".

III. ENGRAILED

1. Follow all the steps to make an invected line and save it with a name like "Line_Invected."
2. Hit Control-A to select all of the canvas.
3. Hit Control-R and flip it vertically:
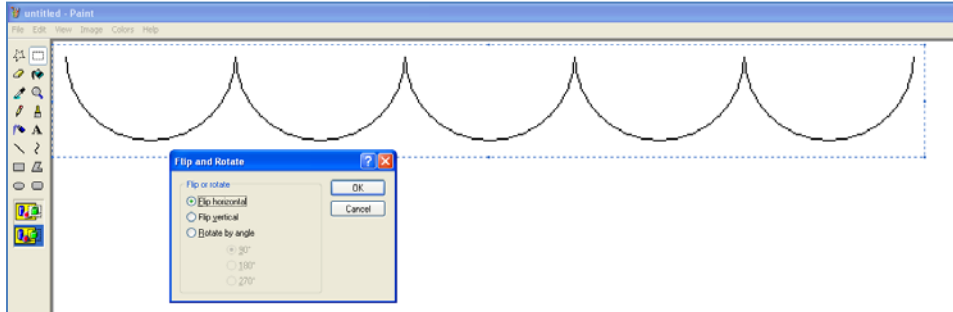
4. Click "File" and "Save As" to save the image with a name like "Line_Engrailed".

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IV. INDENTED/DANCETTY

1. Click the straight line tool [image] on the left-side menu.
2. Hold the Shift key down and draw a 45-degree line to the distance you want:
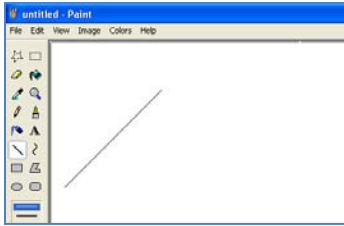
3. Click the rectangular select tool [image] on the left menu, and click the invisible background selection at the bottom of the Tools menu [image]
4. Select the entire line and hit Control-C to copy.
5. Hit Control-V to paste and Control-R to flip the copy horizontally:
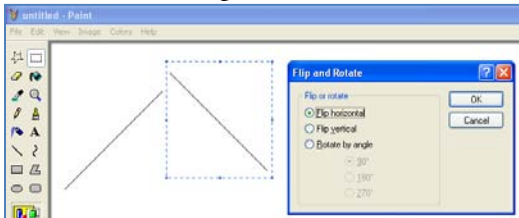
6. Overlap just the tips of the lines and click somewhere else on the canvas to leave the copy in place:
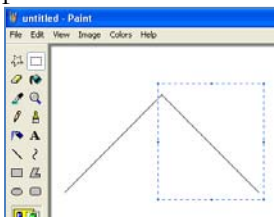
7. Select the entire "V" shape and hit Control-C to copy it.
8. Hit Control-V to paste the copy.
9. Overlap the edge of the copy with the original and click elsewhere on the canvas to leave the copy:

10. Repeat steps 7-9 until you have enough bumps.
11. Click "File" and "Save As" to save the image with a name like "Line_Invected".

V. EMBATTLED

1. Click the Rectangle tool on the left-side menu.
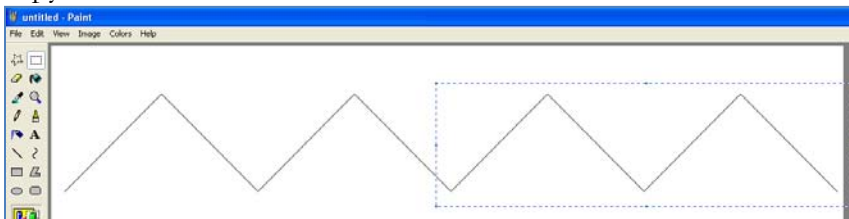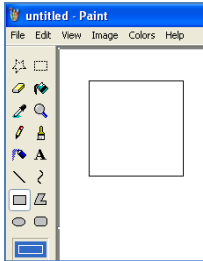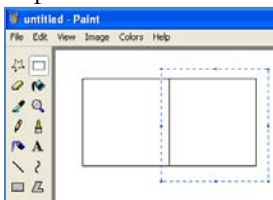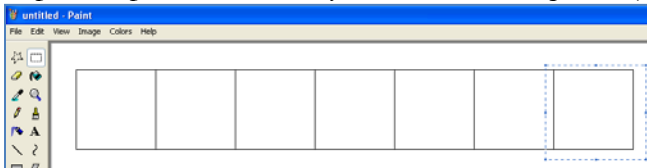2. Hold down the Shift key and click and drag to create a perfect square:

18. Click the rectangular select tool on the left menu, and click the invisible background selection at the bottom of the Tools menu
3. Select the entire square and hit Control-C to copy it.
4. Hit Control-V to paste the copy.
5. Overlap just the vertical edges of the square and click elsewhere on the canvas to leave the copy in place:

6. Repeat steps 5 and 6 until you have 7 or 9 squares (an odd number works best):

7. Use the eraser tool from the left-side menu to remove alternating sections of the top and bottom lines (if you make any mistakes, hit Control-Z to undo them):

8. Click "File" and "Save As" to save the image with a name like "Line_Embattled".

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VI. EMBATTLED GRADY

1. Click the Rectangle tool ▭ on the left-side menu.
2. Hold down the Shift key and click and drag to create a perfect square:

3. Click the rectangular select tool ⬚ on the left menu, and click the invisible background selection at the bottom of the Tools menu
4. Select the square and hit Control-C to copy it.
5. Hit Control-V to paste the copy, then set the copy down so it overlaps one edge of the original square:

6. Continue to paste copies of the square and overlap them until you have a set of squares that is 2 squares high and 3 squares wide:
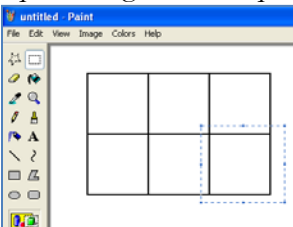
7. Use the eraser tool ✎ to remove line segments until a "zigzag" line is left:

8. Click the rectangular select tool ⬚ on the left menu.
9. Select the entire shape and hit Control-C to copy it.

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10. Hit Control-V to paste the copy, then hit Control-R to flip it horizontally:

11. Overlap the bottom line of the copy with the original, then click elsewhere on the canvas to leave it in place:
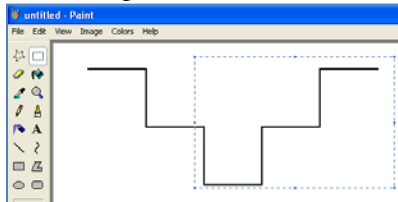
12. Select the entire line and hit Control-C to copy it.

13. Hit Control-V to paste the copy, overlap the top edges, and then click elsewhere on the canvas to leave it in place:
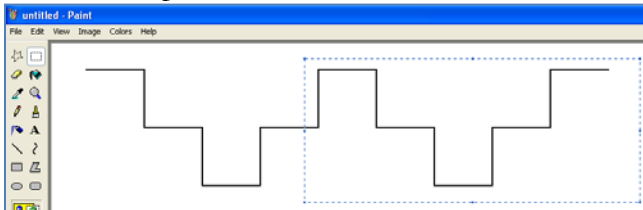
14. Repeat until you have enough "bumps."

15. Click "File" and "Save As" to save the image with a name like "Line_Embattled_Grady".

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VII. POTENTY

1. Click the Rectangle tool ▭ on the left-side menu.
2. Hold down the Shift key and click and drag to create a perfect square:
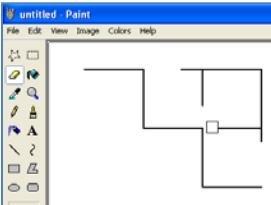
3. Click the rectangular select tool ⬚ on the left menu, and click the invisible background selection at the bottom of the Tools menu
4. Select the square and hit Control-C to copy it.
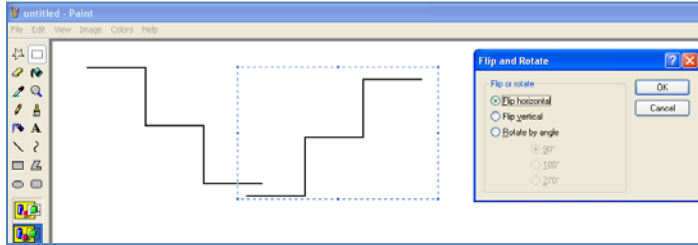5. Hit Control-V to paste the copy, then set the copy down so it overlaps one edge of the original square:

6. Continue to paste copies of the square and overlap them until you have a set of squares that is 2 squares high and 3 squares wide:
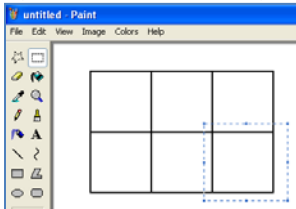
7. Use the eraser tool ▱ to remove line segments until a "T" shape is left:

8. Select the entire shape, then hit Control-C to copy it.

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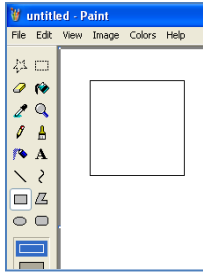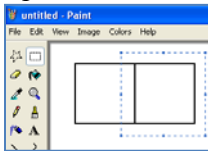9. Hit Control-V to paste the copy, then Control-R to flip it vertically:

10. Overlap the images, then click elsewhere on the canvas to leave the copy in place:
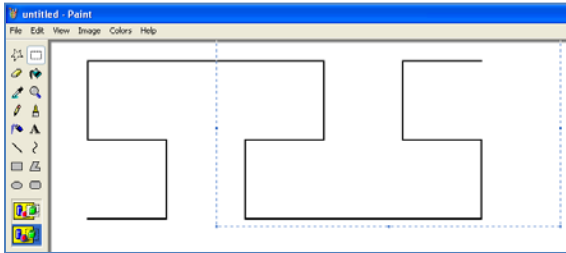
11. Select the entire image, then hit Control-C to copy it.
12. Hit Control-V to paste the copy.
13. Overlap the original and click elsewhere on the canvas to leave the copy in place:
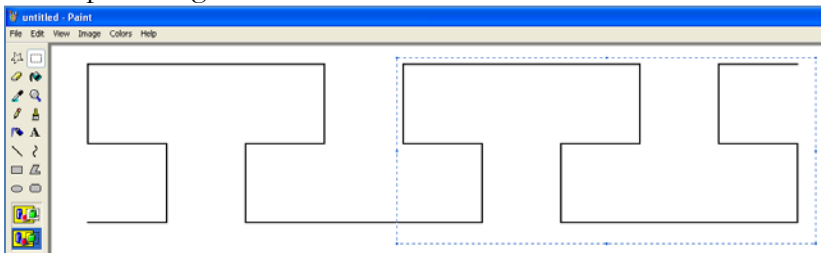
14. Repeat steps 11-13 until you have enough "bumps".
15. Click "File" and "Save As" to save the image with a name like "Line_Potenty".

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VIII. URDY

1. Click the Rectangle tool [icon] on the left-side menu.
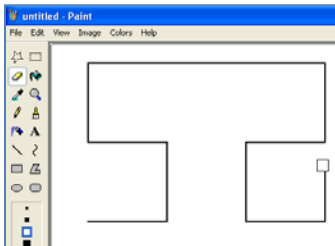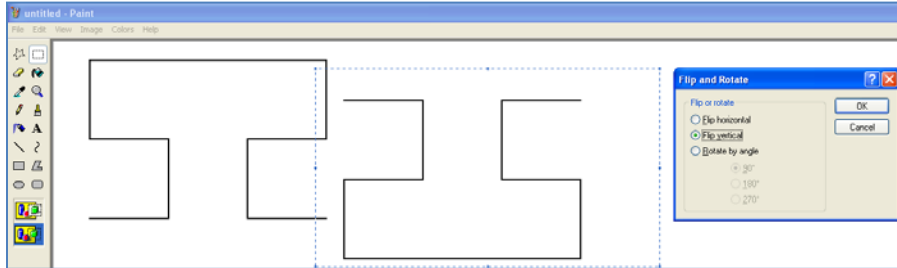2. Hold down the Shift key and click and drag to create a perfect square:
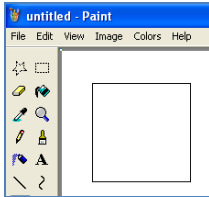
3. Use the eraser tool [icon] to remove the top and bottom lines:
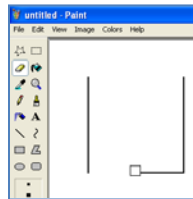
4. Select the straight line tool [icon]
5. Hold down the Shift key while you click on the top tip of the first vertical line and drag to draw a 45-degree line up and to the right (don't worry about going too far):

6. Hold down the Shift key while you click on the top tip of the second vertical line and drag to draw a 45-degree line up and to the left, overlapping the other line:
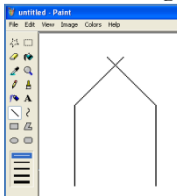
7. Use the eraser tool [icon] to remove the excess lines:
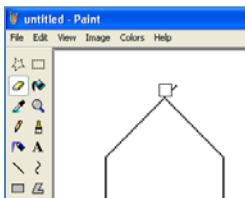
8. Click the rectangular select tool [icon] on the left menu, and click the invisible background selection at the bottom of the Tools menu [icon]
9. Hit Control-A to select all of the canvas and hit Control-C to copy it.

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10. Hit Control-V to paste the copy, then Control-R to flip it vertically:

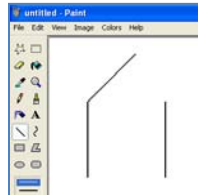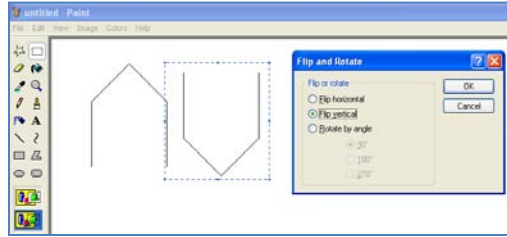11. Overlap the edges of the copy and the original, then click elsewhere on the canvas to leave the copy in place:

12. Hit Control-A to select all of the canvas and hit Control-C to copy it.
13. Hit Control-V to paste the copy, then Control-R to flip it horizontally:
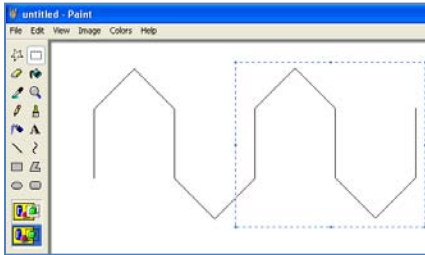
14. Repeat steps 11-12 until you feel like you have enough "bumps".
15. Click "File" and "Save As" to save the image with a name like "Line_Urdy".

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IX. DOVETAILED

1. Select the straight line tool ⬚ from the left-hand menu.
2. Hold down the Shift key while you click and drag to draw a horizontal line.
3. Repeat step 2 so you have 2 horizontal lines that are roughly parallel:

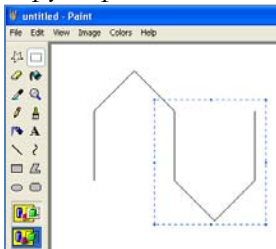4. Hold down the Shift key and draw a line at 45-degrees from the top line to the bottom line:

5. Click the rectangular select tool ⬚ on the left menu, and click the invisible background selection at the bottom of the Tools menu ⬚
6. Select the section of the image with the 45-degree line.
7. Hit Control-C to copy the section.
8. Hit Control-V to paste the section, then hit Control-R to flip it horizontally:
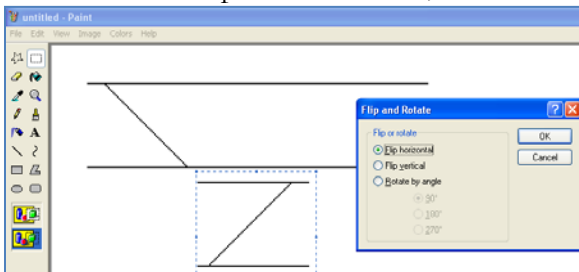
9. Overlap the copy and the original until it looks right, then click elsewhere on the screen to leave it in place:
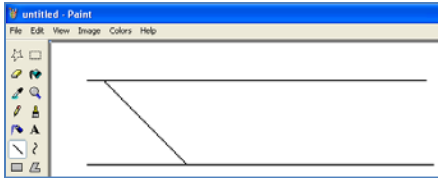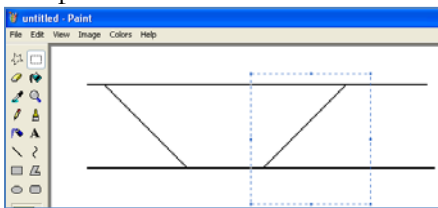
10. Hit Control-A to select all of the canvas and hit Control-C to copy it.

11. Hit Control-V to paste, then Control-R to flip the copy vertically:
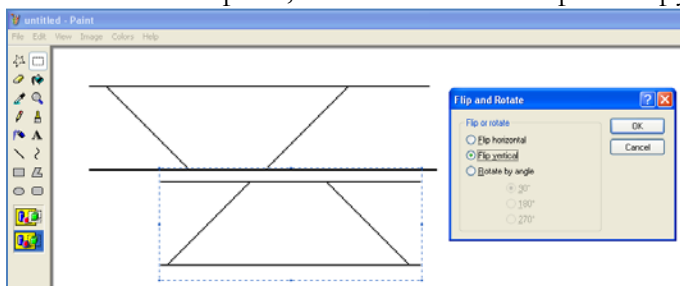
12. Overlap the 45-degree line on the left side of the copy with the 45-degree line on the right side of the original (this ensures that the spacing is even). Click elsewhere on the canvas to leave the copy in place:
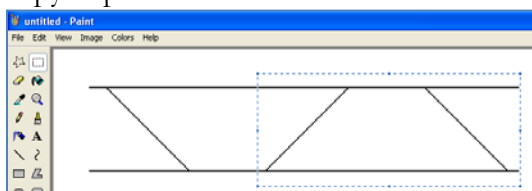
13. Hit Control-A to select all of the canvas and hit Control-C to copy it.

14. Hit Control-V to paste the copy, overlap it with the right edge of the original, and click elsewhere on the canvas to leave it in place:

15. Use the eraser tool to remove the SHORT line segments as well as the ends from the original horizontal lines:

16. Click "File" and "Save As" to save the image with a name like "Line_Dovetailed".

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X. RAGULY

1. Select the straight line tool from the left-hand menu.
2. Hold down the Shift key while you click and drag to draw a horizontal line.
3. Repeat step 2 so you have 2 horizontal lines that are roughly parallel:

4.
5. Hold down the Shift key and draw a line at 45-degrees from the top line to the bottom line:
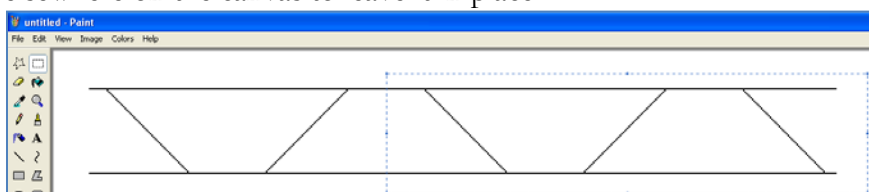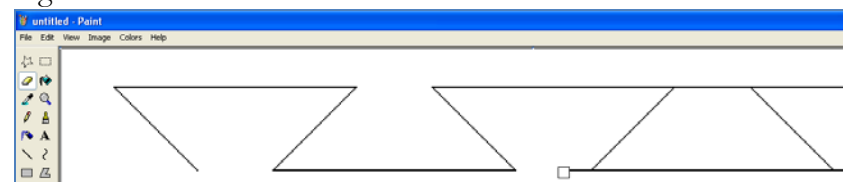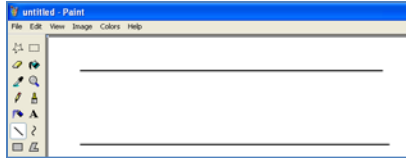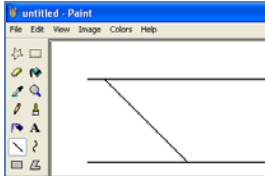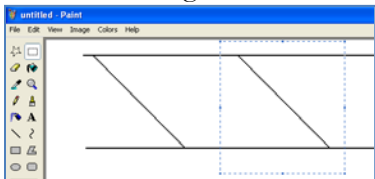
6.
7. Click the rectangular select tool on the left menu, and click the invisible background selection at the bottom of the Tools menu
8. Select the section of the image with the 45-degree line.
9. Hit Control-C to copy the section.
10. Hit Control-V to paste the section, then move it around making sure the horizontal lines overlap until it looks right:

11. Hit Control-A to select all of the canvas and hit Control-C to copy it.
12. Hit Control-V to paste the image, overlapping the right-hand line of the original with the left-hand line of the copy (this ensures that the spacing is correct):

13. Repeat step 12 until you have about 7 segments (an odd number works best).

14. Use the eraser tool to remove the ends of the original horizontal lines, and alternating top and bottom segments:
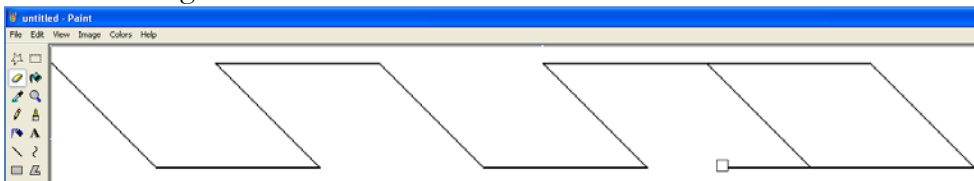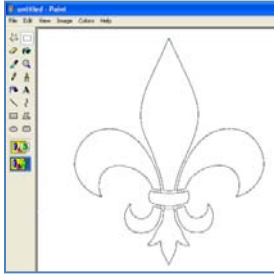
15. Click "File" and "Save As" to save the image with a name like "Line_Raguly".

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XI. FLORY

1. Search the internet for a picture of a fleur-de-lis outline in black and white <u>with no interior details</u>. Right-click the image and select "Copy".

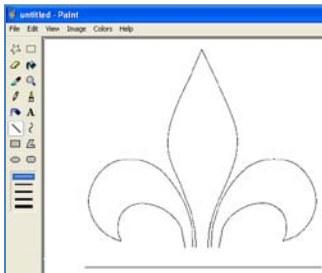2. Click back on the Paint program and hit Control-V to paste the image:

3. Click the rectangular select tool [⬚] on the left menu, and click the invisible background selection at the bottom of the Tools menu [⬚]

4. Select the bottom portion of the fleur-de-lis and hit the Delete key to remove it:
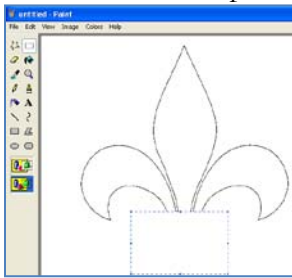
5. Click the straight line tool [╲] on the left-side menu. You may need to extend the "stem" of the fleur-de-lis until it is lower than the lobes:
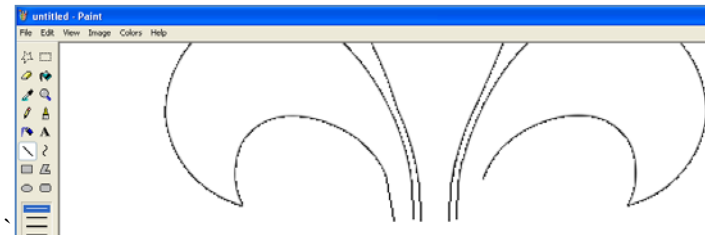
6. Hold down the Shift key while you click and drag to create a horizontal line along the bottom of the canvas that is a little wider than the fleur-de-lis(you may need to select a thicker line from the bottom of the Tools menu to match the fleur-de-lis image):

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7. Click the rectangular select tool [icon] on the left menu, and click the invisible background selection at the bottom of the Tools menu [icon]

8. Select the horizontal line and move it up until it contacts the bottom of the fleur-de-lis:
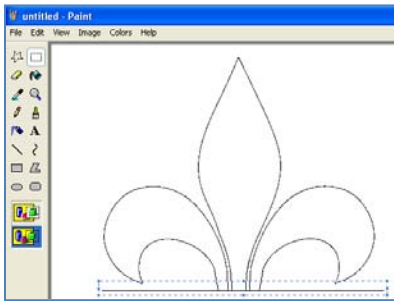
9. Use the eraser tool [icon] to remove the horizontal line between the lobes of the fleur-de-lis:
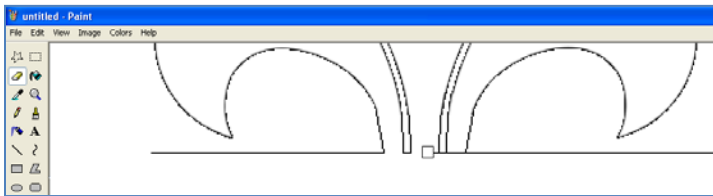
10. Hit Control-A to select all of the canvas and hit Control-C to copy it.
11. Hit Control-V to paste the copy.
12. Line up the horizontal lines and click elsewhere on the canvas to leave the copy in place:
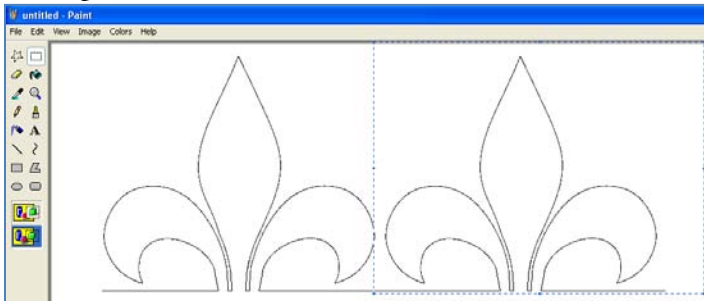
13. Repeat steps 11-12 until you have enough fleurs.
14. Click "File" and "Save As" to save the image with a name like "Line_Flory".

XII. FLORY-COUNTERFLORY

1. Follow the instructions for flory through step 11.
2. Hit Control-R to flip the copy vertically:

3. Line up the horizontal lines and then click elsewhere on the canvas to leave the copy in place:

4. Hit Control-A to select all of the canvas and hit Control-C to copy it.
5. Hit Control-V to paste the copy, then Control-R to flip it vertically.
6. Overlap the last fleur-de-lis and click elsewhere to paste the copy (this ensures even spacing):

7. Continue to hit Control-V to paste copies and overlap them until you have enough.
8. Click "File" and "Save As" to save the image with a name like "Line_Flory-Counterflory".

XIII. NEBULY

1. Click the circle tool
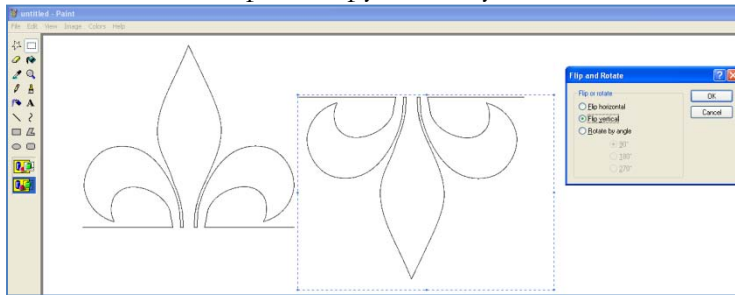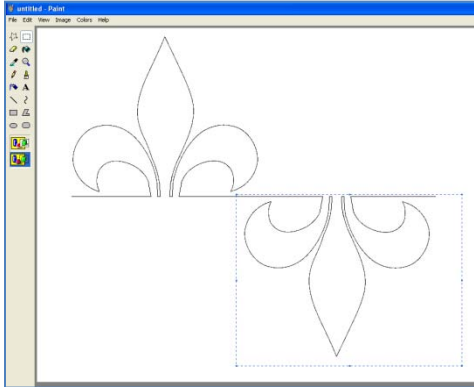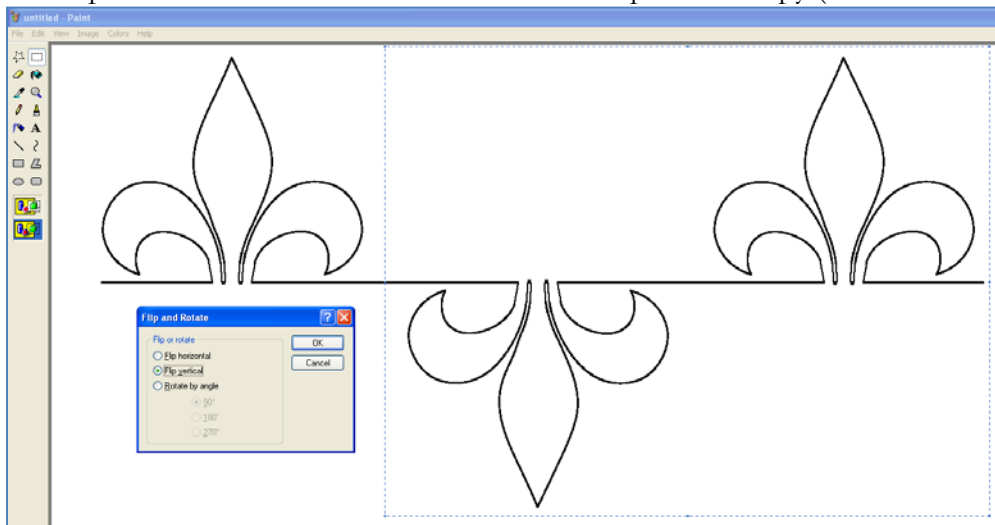2. Click and drag on the canvas to create an oval that is wider than it is tall:

3. Click the rectangular select tool on the left menu, and click the invisible background selection at the bottom of the Tools menu
4. Select the entire oval and hit Control-C to copy it.
5. Hit Control-V to paste the copy, overlap the lower-right side of the original oval with it, and click elsewhere on the canvas to leave the copy in place:

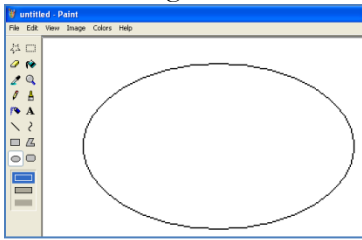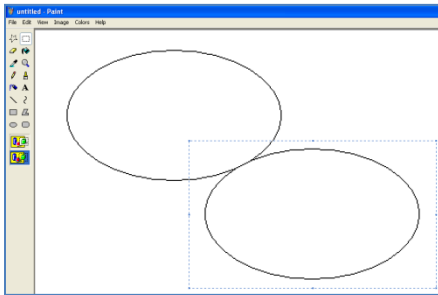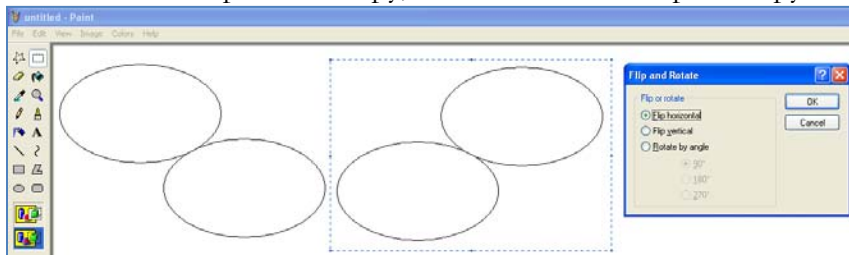6. Hit Control-A to select all of the canvas and hit Control-C to copy it.
7. Hit Control-V to paste the copy, then Control-R to flip the copy horizontally:

8. Overlap the lower ovals and click elsewhere on the canvas to leave the copy in place (this ensures even spacing):

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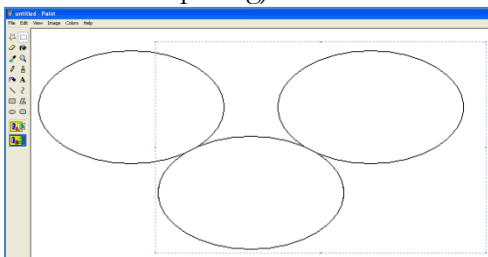
9. Use the eraser tool to remove the bottoms of the top ovals, and the portion of the lower oval that is between them (you may need to click the magnifying-glass tool to zoom in; don't worry about erasing too much – steps 10-11 will correct any problems):

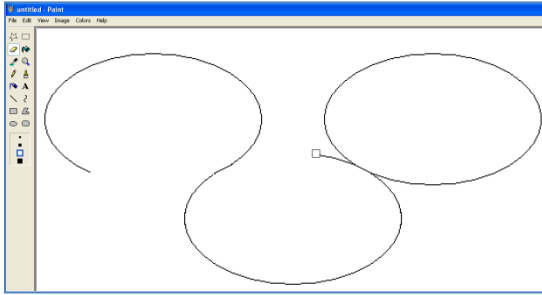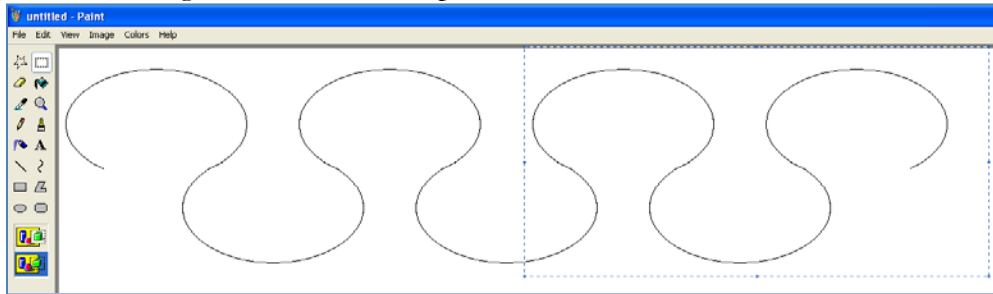10. Hit Control-A to select all of the canvas and hit Control-C to copy it.
11. Hit Control-V to paste the copy and overlap the last oval to ensure even spacing. Repeat until you have the right number of "bumps":

12. Click "File" and "Save As" to save the image with a name like "Line_Nebuly".

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XIV. RAYONNY

This line requires patience and practice. Expect to try it several times before getting an aesthetically-pleasing line.

1. Select the curved line tool from the left-side menu.
2. Click near the top-right of the canvas and drag about halfway down and to the left:

3. Click about ¼ of the way from the top of the line and on the left side of the line; drag to the left to put a leftward curve at the top of the line:
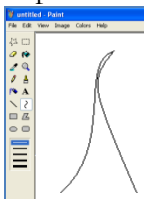

4. Click about ¼ from the bottom of the line and on the right side; drag to the right to make the line into an S-shape:
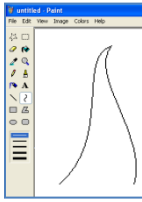

5. Click on the upper tip of the line and drag to a point to the right of the bottom tip:

6. Click about ¼ of the way from the top of the line and on the left side of the line; drag to the left to put a leftward curve in the line:

7. Click about ¼ from the bottom of the new line and on the right side; drag to the right to make the line into an S-shape:

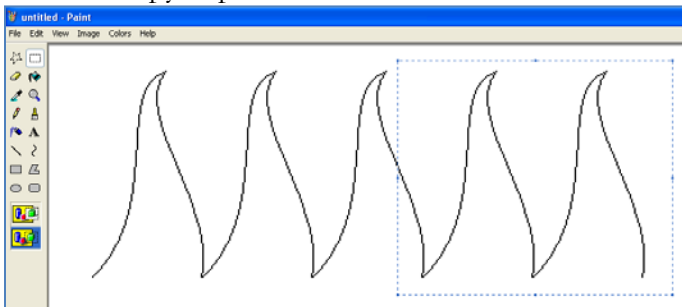8. Click the rectangular select tool [icon] on the left menu, and click the invisible background selection at the bottom of the Tools menu [icon]

9. Select the space below the ray, including the bottom 2-3 pixels of both lines of the ray. Hit the Delete key to remove the bottom pixels – this ensures that the bottom of the ray is even and the resulting line stays level.

10. Select the entire ray and hit Control-C to copy it.
11. Hit Control-V to paste the copy; overlap the bottom tips and click elsewhere on the canvas to leave the copy in place:
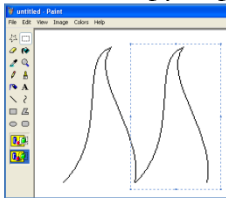

12. Select the entire ray and hit Control-C to copy it.
13. Hit Control-V to paste the copy; overlap the bottom tips and click elsewhere on the canvas to leave the copy in place:


14. Repeat steps 12-14 until you have enough rays. You will need a LOT more rays for a rayonny line than for other complex lines.
15. Click "File" and "Save As" to save the image with a name like "Line_Rayonny".
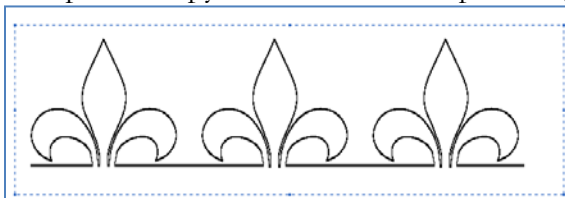
XV. RE-SIZING A LINE TO FIT

1. Click the rectangular select tool [ ] on the left menu, and click the invisible background selection at the bottom of the Tools menu [ ]

2. Select the line:
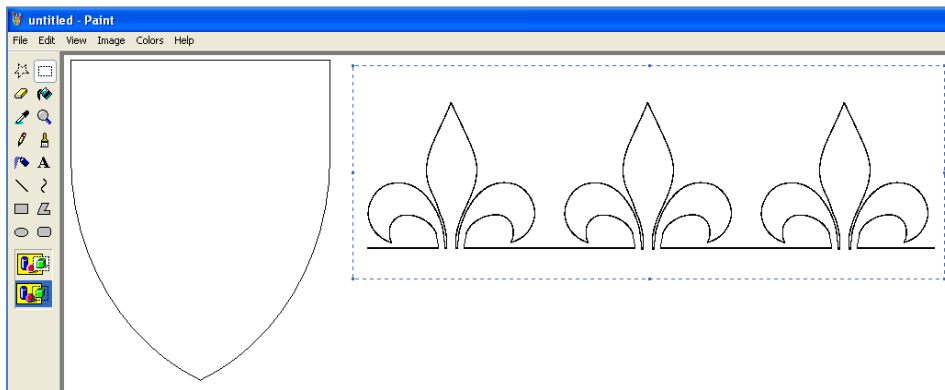
3. Hit Control-C to copy the line (this is your insurance policy – see step 5).
4. Hit Control-W to re-size the line. Always try to change both the height and the width by the same percentage to ensure that the proportions stay right. A percentage smaller than 100% will make the selection smaller, while a number higher than 100% will make the selection larger:
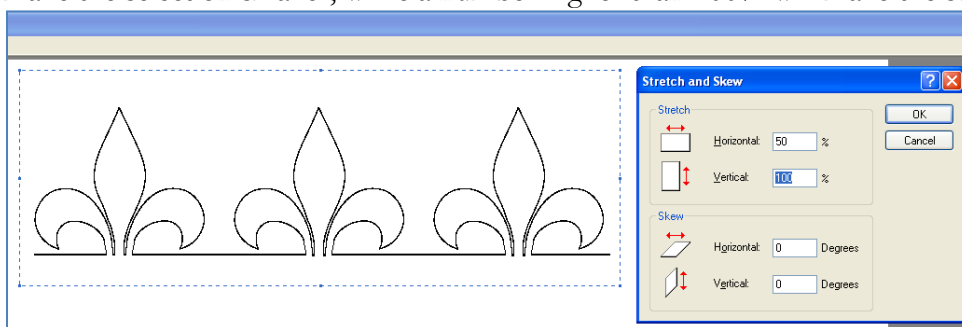

5. If the size isn't right, hit the Delete key and then Control-V to paste a fresh copy of the line (now aren't you glad you copied it?). Hit Control-W to try a different percentage.
6. If the shrunken line has gaps, you may need to make it thicker before you shrink it. Hit Control-V to paste a copy of the line. Overlap the original line but off-set it by 1 pixel lower:
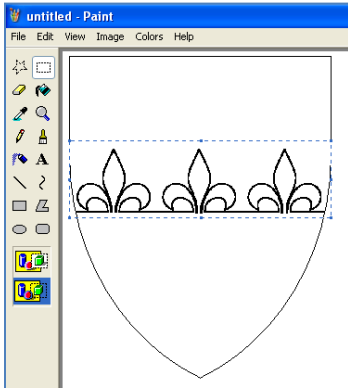

7. Select the new, thicker line and hit Control-C to copy it.

8. Hit Control-V to paste a copy of the thicker line. Overlap the original line but off-set it by 1 pixel to the right:
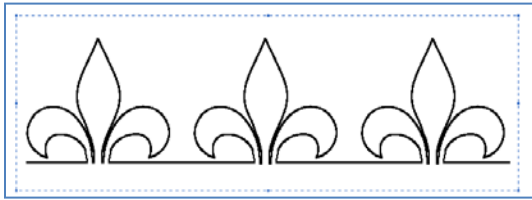
9. Try re-sizing it again until the shrunken version does not have gaps. You may have to repeat steps 6-8 again as needed.

As an alternative when the line is too small, you can try to add "repetitions" of the pattern to make the line longer (be careful not to render the details too small to be identifiable). Use the rectangular select tool on the left menu, and click the invisible background selection at the bottom of the Tools menu to select, and hit Control-V to paste the copy.

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