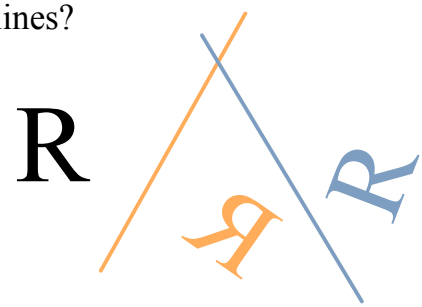
Mth171 - Agenda for 10/14

- "Show and tell" -- your irregular tiling.

- Homework questions from last time?
  - Reptile comment: #8

- Begin Ch. 5 on two-dimensional symmetry.
  - We'll pick and choose most relevant parts

- HW Ch. 5.1:
  #4, 6, 7, 8, and Challenge Problem (below).
  Challenge Problem (pushed back to next time):
  * What is the result of two subsequent reflections across two different lines?



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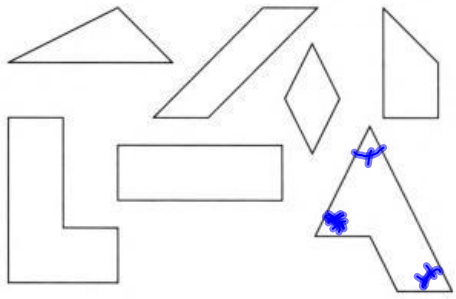
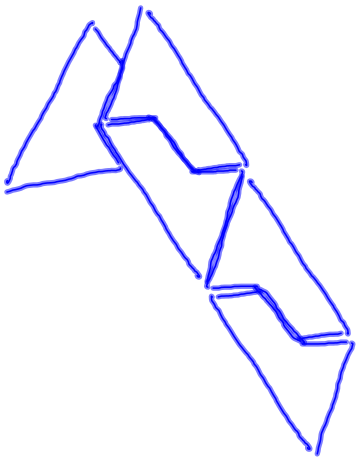
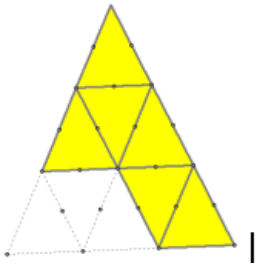
SSS Textbook Link (Google Books)

▷ **Exercise 8.** Show that each of the following is a reptile:







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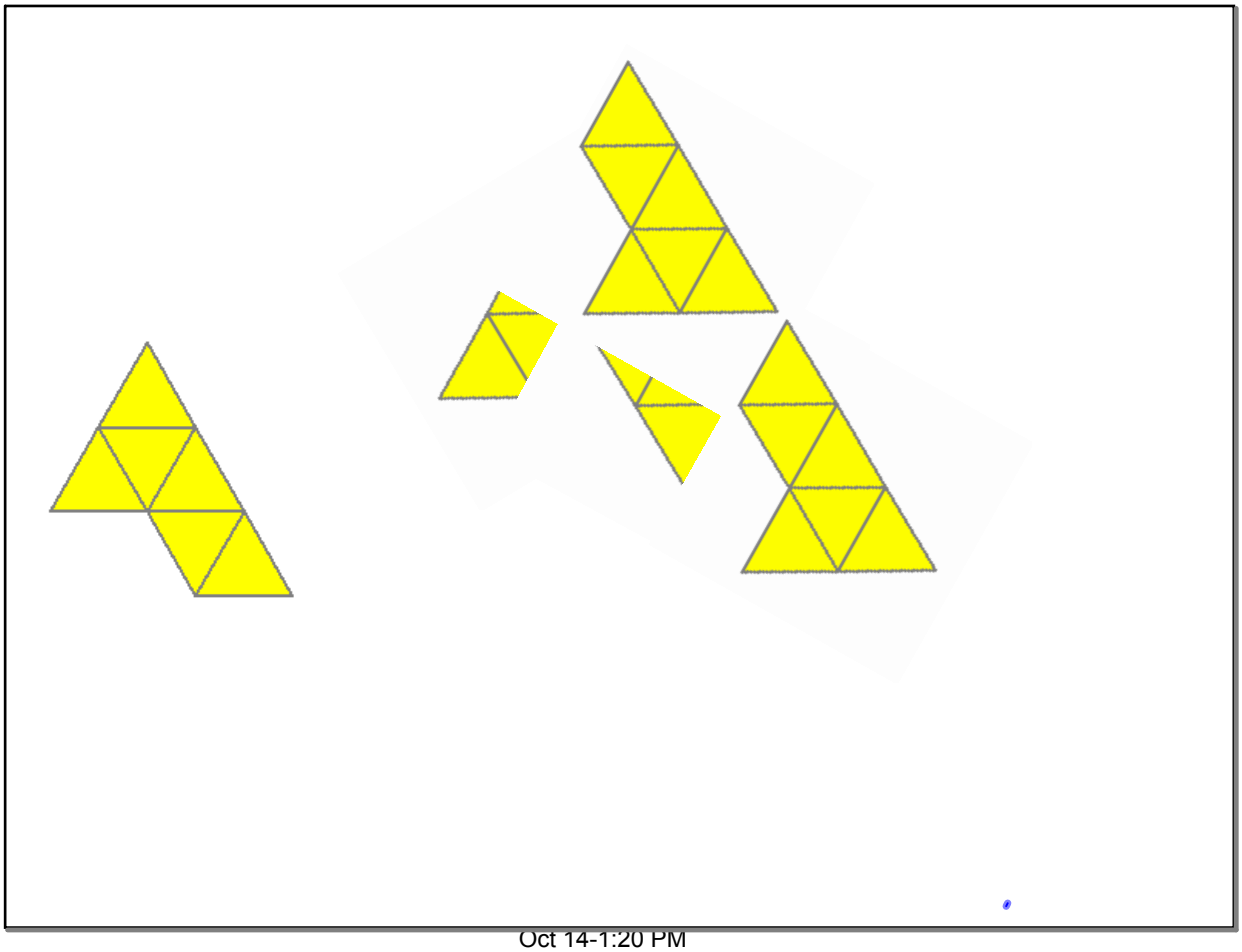

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Other Homework Questions?

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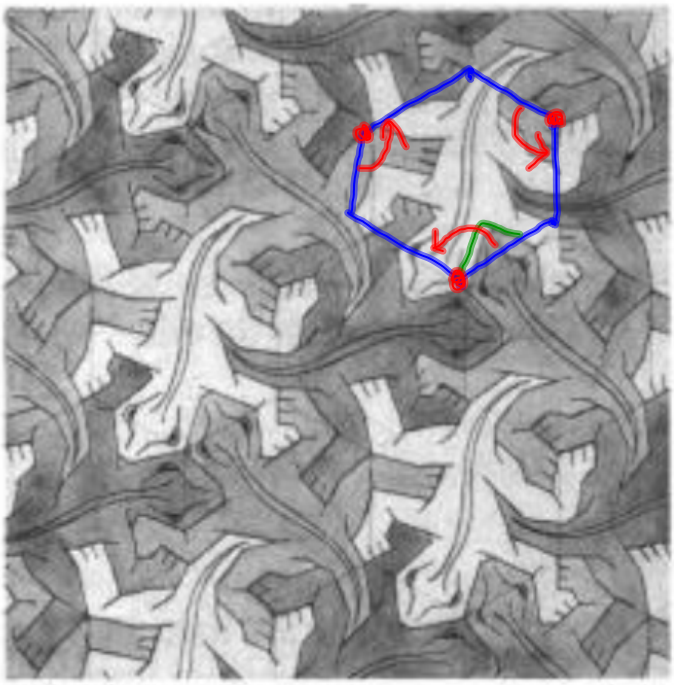

Three side rotations were performed to make this tiling. See figure.

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Sec. 5.1 - Kaleidoscopes

Many natural and man-made objects exhibit *bilateral symmetry*: Each half is the mirror image of the other. Place your mirror on the dotted line below:

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People have approximate bilateral symmetry, though the extent of this is often overestimated. In this, as in many other regards, bugs are superior. It is, however, somewhat amusing to take a full frontal photograph of someone you are not too fond of, scan it into a computer, and use a program like *Adobe Photoshop* to manipulate the image and put together two right halves and two left halves:

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NCTM Activity: Mirror Mirror

(How large is your "mirror image"?)

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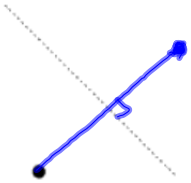
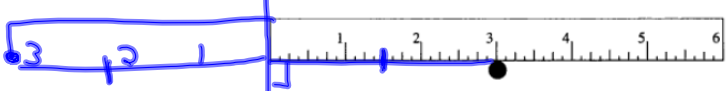
▷ **Exercise 1.** Place your mirror on the dotted line, so that it is perpendicular to this piece of paper, and consider the line from the dot to its image. What angle does this line form with the dotted mirror line?



▷ **Exercise 2.** Place your mirror so that it is at one end of the ruler drawn below and perpendicular to it. How far is the perceived distance from the dot to its reflection? How far is the actual distance from the dot to its image? Try placing the mirror at different distances from the dot. How does the perceived distance from the dot to its image compare to the actual distance?



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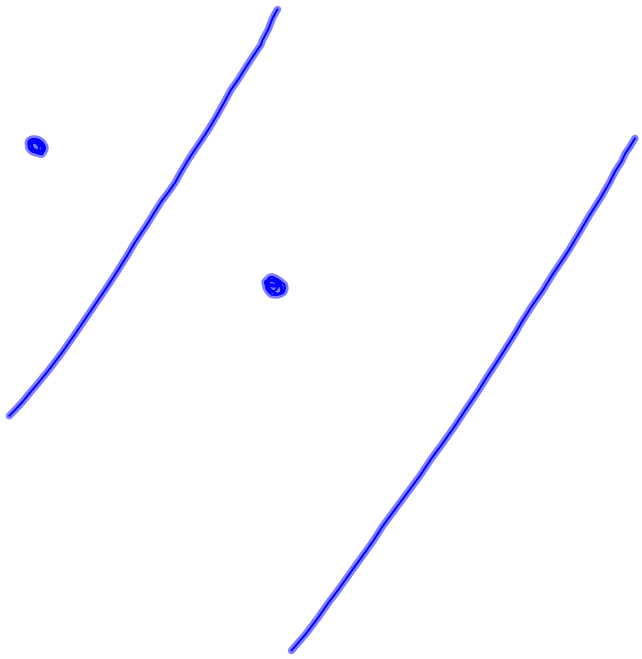
NCTM Activity: Slide Me Now

("What is the effect of two *parallel* reflections?")



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