1 Rational Tangles 1

1. Draw the rational tangle \((2, 3, 3)\)
   
   (a) Since there are an odd number of terms, draw 2 right-handed horizontal crossings.
   
   (b) Draw 3 left-handed vertical crossings.
   
   (c) Draw 3 right-handed horizontal crossing (note we ended by drawing horizontal crossings)

2. Draw the rational tangle \((2, 4, 1, 3)\)
   
   (a) Since there are an even number of terms, draw 2 left-handed vertical crossings.
   
   (b) Draw 4 right-handed horizontal crossings
   
   (c) Draw 1 left-handed vertical crossing.
   
   (d) Draw 3 right-handed horizontal crossing (note we ended by drawing horizontal crossings).

3. What fraction does \((2, 3, 3)\) correspond to?

4. What fraction does \((2, 4, 1, 3)\) correspond to?

5. What fraction does \((2, -4, 3)\) correspond to?

6. Does the tangle \((1, 1, 2, 1, 2) = (2, -4, 3)\)?

7. Find the vector associated to the rational tangle corresponding to the following rational number: \(\frac{9}{7}\)

2 Homework Part 2: Rational Tangles 2

8. Identify the rational knot corresponding to the numerator closure of the tangle in 7.

9. Suppose a protein binds to a 2 right-handed vertical crossings and adds \(n\) right handed horizontal crossings.
   
   Identify rational tangle product for \(n = 1, 2, 3\). In other word, identify \(N(-2, n)\) for \(n = 1, 2, 3\).