Rational Tangles

1. Reduce the following fractions.
   (a) $\frac{899}{3193}$
   (b) $\frac{13981}{41533}$
2. Compute the following gcd's.
   (a) $\gcd(441, 1155)$
   (b) $\gcd(2059, 2581)$
3. Find integers, x and y so that
   (a) $1524x + 96y = 12$ or explain why none exist.
   (b) $1524x + 96y = 36$ or explain why none exist.
   (c) $2220x + 512y = 8$ or explain why none exist.
   (d) $2220x + 512y = 6$ or explain why none exist.
4. What number is represented by the sequence $T, S, T, T, T, T, T, S, T, T, S, T$?
5. What happens when the sequence T, S, T, S, T, S is applied to any number? Why?
6. What happens when the sequence T, S, T, S, T, S is applied to a rational tangle? Why?
7. What rotational symmetries can you find in the zero tangle?
8. Does any rational tangle have more symmetries? Does any have less symmetries.
9. Make a rational tangle, and then remove one rope while having the dancers on the other rope hold on tight. Is it possible for the result to have a knot in it?