Name: _____

Date: _____

Spirograph Predictions

Read through this whole problem before making any designs. Before you've drawn anything, can you predict what patterns you'll see?

Start with the rack that has 96 teeth on the inner track. Place the 48-tooth gear on the inside of the rack. Choose any hole in the gear, and make a pattern. Now repeat this with the 96-tooth rack and the 32-tooth gear. The outer track on the ring should have 144 teeth; make a pattern on the outside of the ring using the 48-tooth gear. What do you notice about these three patterns?

Keep using the ring with 96 teeth on the inner track. Choose any three gears with the following number of teeth: 30, 36, 40, 42, 45, 50, 52, 56, 60. Make a pattern with each of the gears you've chosen, using the inner track on the ring. What do you notice about these three patterns?

Can you use the number of teeth on each gear and ring to explain the patterns that you see? Can you predict which gears would make simple patterns on the outer ring, with 144 teeth?

Show your work, and write your answer in a complete sentence.