



Problem of the Week

Problem E

Roll With It

A die, with the numbers 1, 2, 3, 4, 6, and 8 on its six faces, is rolled. (A net showing the six faces of the die is illustrated below.)

If, after the first roll, the number appearing on the top face of the die is odd, then all of the odd numbers on the die are doubled. If, after the first roll, the number appearing on the top face of the die is even, then all of the even numbers on the die are halved. This new die is rolled. The rules stated above are applied to the outcome of this roll producing another new die.

This second new die is then rolled. No change occurs after this roll. What is the probability that a 2 will be on the top face of the die after the third roll?

