PROBLEM:

Consider the strobe demo shown in class. Remember that we observed that different flashing rates cause the spot on the disk to appear to stand still or to rotate slowly in either the clockwise or counter-clockwise direction.

(a) Assume that the disk actually is rotating in the clockwise direction at a constant speed of 1500 rpm (revolutions per minute). Give a mathematical representation of the motion of the spot in terms of a rotating complex phasor.

(b) What is the largest flashing rate (in flashes/second) such that the spot on the disk appears to be stationary.

(c) Assume that the flashing rate is 12 flashes/second. Determine a discrete-time complex rotating phasor description of the apparent motion of the spot, and describe the apparent motion in words giving direction and angular speed.