Ch 21 HW Quiz #1B

A 1.4 meter length of wire has a mass of 320 grams. The wire carries a current of 0.23 Amps in a direction 32° North of West. An experimenter wishes to "levitate" the wire by having the magnetic force on the wire counteract gravity. What must be the magnitude and direction of the external magnetic field in which the wire is immersed in order for the experiment to succeed (you may assume the field points in some direction in the horizontal plane)?