

Exam 4A, Fall 2005: Problem 3 (Impulse-Momentum Equation)

3. (25 points) A UMR soccer player kicks a 450 gm soccer ball which was originally at rest. The ball leaves his/her foot with a speed of 20 m/s at 30° . If the foot-ball contact takes place in $t = 0.05$ seconds, please determine the force vector of his/her foot onto the ball. Is one justified in neglecting the weight of the ball?

450 gm soccer ball
originally at rest.



Kick occurs in 0.05 seconds. Calculate the average force.

**450 gm soccer ball
originally at rest.**

20 m/s

30°

y
x



Kick occurs in 0.05 seconds. Calculate the average force.