Rich Context: 120 mph baseball collision

Data

M= 143 g

D=7.5 cm

Video is shot at 30 000 fps (frames per second)

$\overrightarrow{v_1} = 120\ mph\ [Left]$

Units

1 mph = 1.6 km/h
1.0 m/s = 3.6 km/h

Problem

What is the average acceleration experienced by the baseball?

Data to get from video

1. Scale
2. Time of collision
3. Displacement of ball after it leaves the metal block and the time it takes to travel it

Calculations: Find each of the following

1. Velocity of ball in m/s before it hits the wall
2. Velocity of ball in m/s after it leaves the wall
3. Acceleration of the ball

Discussion

Does this acceleration seem reasonable? Explain