

Impulse and Momentum Test – Level 4

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1.

A 0.25 kg ball moving north at 7.7 m/s strikes a wall obliquely and rebounds heading east with the same speed of 7.7 m/s. What was the magnitude and direction of the impulse on the ball?

	MAGNITUDE OF THE IMPULSE	DIRECTION OF THE IMPULSE
A.	1.9 N·s	Due East
B.	1.9 N·s	45°S of E
C.	2.7 N·s	Due East
D.	2.7 N·s	45°S of E

2.

A 7.3×10^3 kg space vehicle and its empty 6.8×10^2 kg booster unit are moving together through space at 370 m/s. An explosion lasting 2.2 s is used to separate the two parts. If the speed of the space vehicle after the separation is increased to 430 m/s, what impulse acted on the booster unit?

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3.

A 1.5 kg ball was moving east at 72 m/s and collided with a stationary 8.3 kg wooden sphere. The ball rebounded at 43 m/s in the direction 55° north of west. What were the speed and direction of the wooden sphere after the collision?

