

Conservation of Momentum and Collisions Worksheet

Name _____ Date _____ Period _____

Momentum = mass X velocity

Total Momentum Before Collision = Total Momentum After Collision

momentum object 1	+	momentum object 2	=	Momentum object 1	+	momentum object 2
$m_1 v_1$	+	$m_2 v_2$	=	$m_1 v_1$	+	$m_2 v_2$

1. You are given the following data about a golf club hitting a *stationary* golf ball:

mass of club head	=	0.350 kg
mass of golf ball	=	0.046 kg
speed of club head before collision	=	38 m/s
speed of club head after collision	=	29 m/s

Calculate the following: **SHOW WORK!!**

A. momentum of club head before collision

Answer= _____

B. momentum of club head after collision

Answer= _____

C. momentum of golf ball before collision

Answer= _____

D. momentum of golf ball after collision

Answer= _____

E. Velocity of the golf ball after it is hit by the golf club

Answer= _____

2. You are given the following data about a bowling ball hitting a stationary bowling pin: **SHOW WORK!!**

mass of bowling ball	=	7.0 kg
mass of bowling pin	=	1.5 kg
speed of bowling ball before collision	=	11 m/s
speed of bowling ball after collision	=	6 m/s

Calculate the following: **SHOW WORK!!**

A. momentum of bowling ball before collision

Answer= _____

B. momentum of bowling ball after collision

Answer= _____

C. momentum of bowling pin before collision

Answer= _____

D. momentum of bowling pin after collision

Answer= _____

E. speed of the bowling pin after it is hit by the bowling ball

Answer= _____