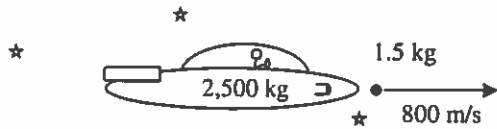


Name: _____

Period: _____

ON Earth $W = mg$
 $(2500)(9.8)$



19. Slim Jim is also an astronaut. His space ship "Galactic Cruiser" is at rest when he shoots his space cannon.

- A. What is the mass of the ship? 2500 kg
 B. What is the weight of the ship? *In space 0*
 C. Calculate the final velocity of the ship.

$(2500 \text{ kg})(0)$
 $0 = (2500)(v) + (1.5)(800)$
 $= 0 - 48$

- D. Which has more momentum afterwards: the ship or the projectile? *Same*

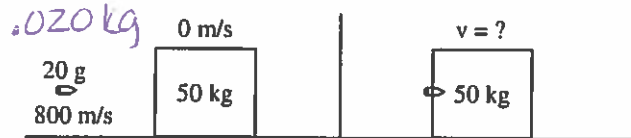
20. A 20 g bullet is shot 800 m/s into 50 kg object. What is the final speed of the combined object?

- A. If 1000 g = 1 kg, what is the mass of the bullet in kilograms? $.020 \text{ kg}$

- B. What is the mass of the *combined object*? 50.02 kg
 C. Under the diagram, calculate the final speed.

- D. The numbers given are realistic for a bullet and a person. In movies, a bullet causes a person to be thrown backwards violently. How likely is the movie scenario? Explain.

Bullet doesn't have enough momentum.

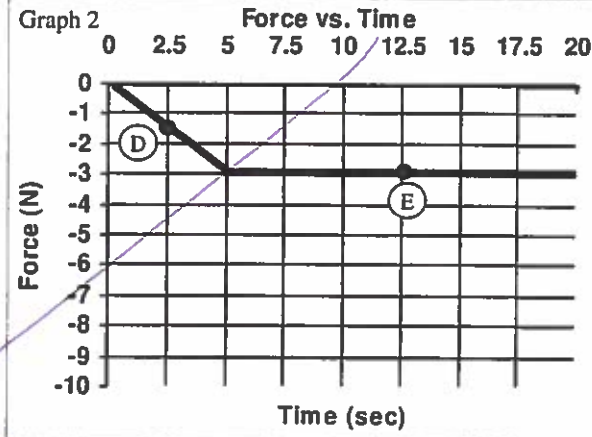
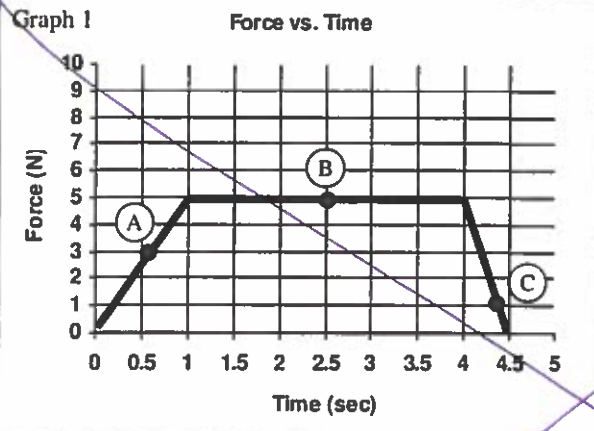


$(.020)(800) + 0 = (50.02)(v)$

$16 = 50.02v$

$.32 \text{ m/s} = v$

$m_1v_1 + m_2v_2 = m_1v_1' + m_2v_2'$



21. Use the graphs above to answer the following questions.

22. Graph 1 or Graph 2?

- A. Shows an object with a positive acceleration
 B. Could be an object moving to the right and slowing down.
 C. Shows a negative change of speed.
 D. Shows a force pushing to the left.

24. Find the impulse of Graph 1.

23. Force A, B, C, D, or E (could be more than one)?

- A. Is the strongest positive force.
 B. Is the greatest negative force.
 C. Is the weakest positive force.
 D. Will cause the fastest negative acceleration.
 E. Is the strongest force pulling left.
 F. Shows negative acceleration.

25. If a 2 kg object going 6 m/s feels the impulse on Graph 1, find its final velocity.