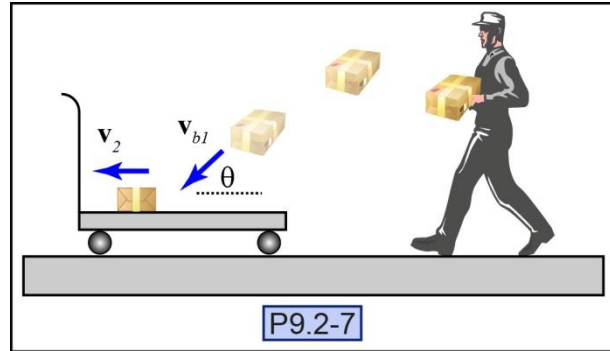


P9.2-7) A worker throws a 20-lb package onto a 100-lb stationary cart. The package strikes the cart with a speed of 3 ft/s at an angle of 25° as shown in the figure. After the package lands on the cart, the cart and package move as one. Determine the cart's speed after the package lands on it and the change in kinetic energy during the impact.



Given:

Find:

Solution:

Using the principle of linear impulse and momentum, calculate the velocity of the cart and package as they move as one.

Hint: Impulse, momentum and the force are all vector quantities.

$v_2 =$ _____

Determine the change in kinetic energy of the system.

$\Delta T =$ _____