Answer on Question #53022-Physics-Mechanics | Kinematics | Dynamics

After an impact involving a non-functioning satellite, a paint chip leaves the surface of the satellite at a velocity of +96m/s for 10 seconds. Then the object is hit by an asteroid and the force causes a 180 degree turn and the chip moves for 15 seconds at -58m/s. What is the overall change in position for the 25 seconds?

Solution

The overall change in position for the 25 seconds is

$$s = v_1 t_1 + v_2 t_2 = +96 \frac{m}{s} \cdot 10 \text{ s} - 58 \frac{m}{s} 15 \text{ s} = 90 \text{ m}.$$

Answer: 90 m.