

9.32. Solve: Using Newton's second law for the x -direction, $F_x = \frac{dp_x}{dt}$. Therefore,

$$F_x = \frac{d}{dt}(6t^2 \text{ kg m/s}) = 12t \text{ N}$$

Assess: The x -component of the net force on an object is equal to the time rate of change of the x -component of the object's momentum.