

6. The impulse / momentum theorem tells us that the impulse is equal to the change in momentum. We determined the change in momentum in the previous problem to be -3.6 kg m / s .

$$F \Delta t = \Delta p$$

$$F (0.01 \text{ s}) = -3.6 \text{ kg m / s}$$

Dividing both sides of the equation by 0.01 s gives

$$F = (-3.6 \text{ kg m / s}) / (0.01 \text{ s}) = -360 \text{ kg m / s}^2$$

$$F = -360 \text{ N}$$

Note that the negative sign indicates that the force acts in the direction opposite to the initial motion.