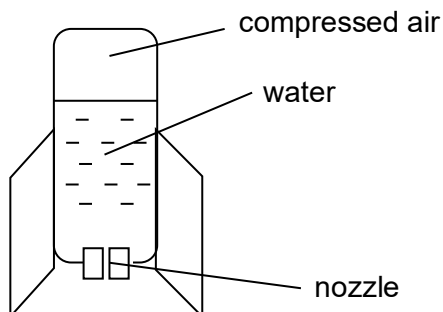**4**

A toy rocket consists of a plastic bottle which is partially filled with water as shown in the figure below. The space above the water contains compressed air.

At one instant during the flight of the rocket bottle, water of density 1000 kg m^{-3} is forced out of the nozzle of radius 0.012 m at a speed of 10 m s^{-1} relative to the nozzle.

What is the rate of change of momentum of the water?

_____

A
45 N
B
120 N
C
3800 N
D
7500 N