

# 技術系専門試験問題演習講座

## 総合職 機械

H.17 国家I種 理工I No.57 (現国家総合職工学)  
(流体力学)  
(+土木)

運動量保存 ( $v=0$  対し)

$$\rho Q v - F = 0 \quad (\text{横方向})$$

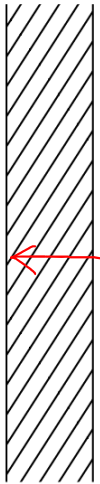
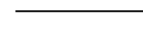
$$F = 10^3 \times 12 \times 10^{-3} \times 20 = 240 \text{ N}$$

全2x

$$F = \rho Q v' = 10^3 \times 12 \times 10^{-3} \times 30 = 360 \text{ N} (?)$$

$$v = 20 \text{ m/s}$$

$$Q = 12 \times 10^{-3}$$

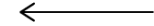


壁に観る



相対速度

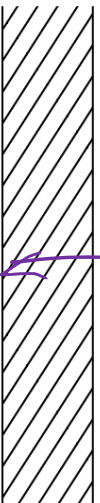
$$V = 10 \text{ m/s}$$



(壁に5対し)

$$Q = 12 \times 10^{-3}$$

$$v' = 30 \text{ m/s}$$



$$\begin{aligned}
 F &= \rho A v'^2 \\
 &= 10^3 \times 6 \times 10^{-4} \times 30^2 \\
 &= 540 \text{ N} //
 \end{aligned}$$

$$\rho A v'^2 = \rho Q v = \rho \frac{Q^2}{A}$$

↑  
何か一定か? 見よう

