

1. (a) The mass flux is $wd\rho v = (3.22\text{ m})(1.04\text{ m})\left(1000\text{ kg/m}^3\right)(0.207\text{ m/s}) = 693\text{ kg/s}$.
(b) Since water flows only through area wd , the flux through the larger area is still 693 kg/s .
(c) Now the mass flux is $(wd/2)\rho v = (693\text{ kg/s})/2 = 347\text{ kg/s}$.
(d) Since the water flows through an area $(wd/2)$, the flux is 347 kg/s .
(e) Now the flux is $(wd\cos\theta)\rho v = (693\text{ kg/s})(\cos 34^\circ) = 575\text{ kg/s}$.