

(1) $\frac{d}{dt} \int_{\Omega} \rho \mathbf{v} \cdot \mathbf{v} dV = \int_{\Omega} \rho \mathbf{v} \cdot \nabla \mathbf{v} dV + \int_{\partial \Omega} \rho \mathbf{v} \cdot \mathbf{v} \mathbf{n} dA$

where ρ is the density, \mathbf{v} is the velocity vector, ∇ is the divergence operator, and \mathbf{n} is the outward normal vector to the surface $\partial \Omega$.

(2) $\frac{d}{dt} \int_{\Omega} \rho \mathbf{v} \cdot \mathbf{v} dV = \int_{\Omega} \rho \mathbf{v} \cdot \nabla \mathbf{v} dV + \int_{\partial \Omega} \rho \mathbf{v} \cdot \mathbf{v} \mathbf{n} dA$

(3) $\frac{d}{dt} \int_{\Omega} \rho \mathbf{v} \cdot \mathbf{v} dV = \int_{\Omega} \rho \mathbf{v} \cdot \nabla \mathbf{v} dV + \int_{\partial \Omega} \rho \mathbf{v} \cdot \mathbf{v} \mathbf{n} dA$

(4) $\frac{d}{dt} \int_{\Omega} \rho \mathbf{v} \cdot \mathbf{v} dV = \int_{\Omega} \rho \mathbf{v} \cdot \nabla \mathbf{v} dV + \int_{\partial \Omega} \rho \mathbf{v} \cdot \mathbf{v} \mathbf{n} dA$

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where ρ is the density, \mathbf{v} is the velocity vector, ∇ is the divergence operator, and \mathbf{n} is the outward normal vector to the surface $\partial \Omega$.

(b) $\frac{d}{dt} \int_{\Omega} \rho \mathbf{v} \cdot \mathbf{v} dV = \int_{\Omega} \rho \mathbf{v} \cdot \nabla \mathbf{v} dV + \int_{\partial \Omega} \rho \mathbf{v} \cdot \mathbf{v} \mathbf{n} dA$

where ρ is the density, \mathbf{v} is the velocity vector, ∇ is the divergence operator, and \mathbf{n} is the outward normal vector to the surface $\partial \Omega$.

(c) $\frac{d}{dt} \int_{\Omega} \rho \mathbf{v} \cdot \mathbf{v} dV = \int_{\Omega} \rho \mathbf{v} \cdot \nabla \mathbf{v} dV + \int_{\partial \Omega} \rho \mathbf{v} \cdot \mathbf{v} \mathbf{n} dA$

where ρ is the density, \mathbf{v} is the velocity vector, ∇ is the divergence operator, and \mathbf{n} is the outward normal vector to the surface $\partial \Omega$.

(d) $\frac{d}{dt} \int_{\Omega} \rho \mathbf{v} \cdot \mathbf{v} dV = \int_{\Omega} \rho \mathbf{v} \cdot \nabla \mathbf{v} dV + \int_{\partial \Omega} \rho \mathbf{v} \cdot \mathbf{v} \mathbf{n} dA$

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(2) $\frac{d}{dt} \int_{\Omega} \rho \mathbf{v} \cdot \mathbf{v} dV = \int_{\Omega} \rho \mathbf{v} \cdot \nabla \mathbf{v} dV + \int_{\partial \Omega} \rho \mathbf{v} \cdot \mathbf{v} \mathbf{n} dA$

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