Homework #5 **Deadline: April 10, 2018, 12:20.**

1. Using the balance of mass, compute the material time derivative of gradient of density, i.e.
$$\dot{\overline{\nabla \varrho}} = \frac{\mathrm{d}}{\mathrm{d}t}(\nabla \varrho).$$

2. Let $\eta = \tilde{\eta}(e, \varrho, \nabla \varrho)$. Show that principle of objectivity implies that $\eta = \tilde{\eta}(e, \varrho, |\nabla \varrho|)$.