Mathematical Physics — PHZ 3113
Divergence, (January 25, 2013)

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1. Calculate

$$\nabla \cdot \vec{r} \tag{1}$$

2. Calculate

$$\nabla \cdot \vec{r} f(r) \tag{2}$$

3. Example: Calculate (2) for $f(r) = r^{n-1}$.

4. Calculate the divergence of the electric field

$$\vec{E} = \frac{q \, \hat{r}}{4\pi \, \epsilon_0 \, r^2} \tag{3}$$

for $\vec{r} \neq \vec{0}$.