Problem 1

Fix $x, y \in \mathbb{R}$. Assuming $x \dot{\div} y = \text{fl}(\text{fl}(x) \div \text{fl}(y))$, since fl is backward stable, take $\tilde{z} \in \mathbb{R}$ such that

$$\frac{|\tilde{z} - \text{fl}(x) \div \text{fl}(y)|}{|\text{fl}(x) \div \text{fl}(y)} < \epsilon_{machine} \text{ and } \text{fl}(\text{fl}(x) \div \text{fl}(y)) = \tilde{z}$$