

**PROBLEM OF THE MONTH, DEPT. OF  
MATHEMATICS, CU BOULDER**

APRIL 2022

Show that  $f : \mathbb{R} \rightarrow \mathbb{R}$  and  $c \neq 0$  together with

$$f(x + f(y)) = f(x) + f(y) + cy, \quad \forall x, y \in \mathbb{R},$$

imply that

$$f(x + y) = f(x) + f(y), \quad \forall x, y \in \mathbb{R}.$$