18.100A Assignment 2

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Problem 1

Proof. (By contradiction).

Suppose instead that $xy \leq xz$. Then

$\implies xy - xz \leq 0$

$\implies x(y - z) \leq 0.$

Since $x < 0$ by assumption, it must then be true that $y - z \geq 0$. But then

$\implies y \geq z \quad \Rightarrow\Leftarrow,$

which is a contradiction since we assumed that $y < z$. Thus, $xy > xz$. □