Fraction Numerator-Denominator Addition

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1 Statement

Let $a < b$ be two positive number and c be another positive number (not necessarily distinct). $\frac{a+c}{b+c}$ gets larger for increasing values of c.

2 Proof

We're given that $a < b$, so we try to manipulate both sides and get what we want.

$$\begin{gathered} a < b \\ ac < bc \\ ab + ac < ab + bc \\ a(b + c) < b(a + c). \\ \frac{a}{b} < \frac{a+c}{b+c} \end{gathered}$$

That's it!