Let $f(x)$ be an Linear function.

Let x^* be an internal dividing point by ratio $a:b$

Then $x^* = \frac{bx_1 + ax_2}{a+b} = \frac{b}{a+b}x_1 + \frac{a}{a+b}x_2$

Since $f(x)$ is an linear function, $f(x^*) = \frac{b}{a+b}f(x_1) + \frac{a}{a+b}f(x_2)$

Thus, when we put $\frac{a}{a+b} = t$ and $\frac{b}{a+b} = 1-t$

Then $f(x^*) = (1-t)f(x_1) + tf(x_2)$

Also, when we put $\frac{b}{a+b} = s$ and $\frac{a}{a+b} = 1-s$

Then $f(x^*) = sf(x_1) + (1-s)f(x_2)$