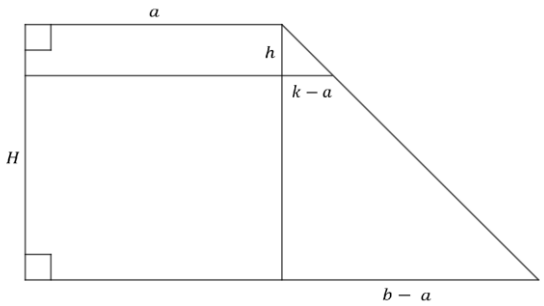
A trapezium has upper base a, lower base b, and height h. It is divided by horizontal lines (parallel to the bases) into n smaller trapezia of equal area. The uppermost smaller trapezium (i.e. the one that has upper base a) has lower base k. Find n in terms of a, b, and k.

Consider a trapezium with two right angles.



$n = \frac{(a+b)H}{(a+k)h}$ $\frac{H}{b-a} = \frac{h}{k-a}$ $n = \frac{(a+b)(b-a)}{(a+k)(k-a)}$ $n = \frac{b^2-a^2}{k^2-a^2}$