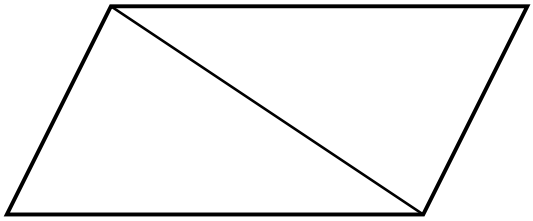
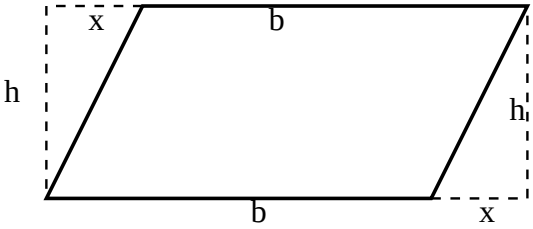
Proof By Picture — February 22, 2010

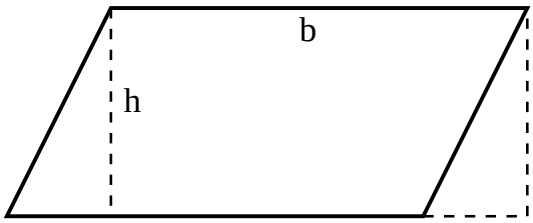
1. Explain how the following picture "proves" that the area of a parallelogram is base $\times$ (perpendicular) height ($b \times h$).



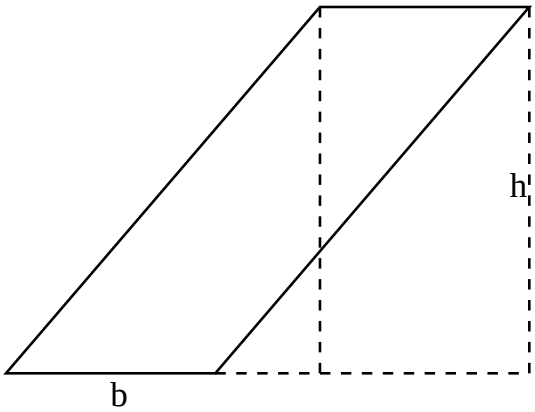
2. Explain how the following picture "proves" that the area of a parallelogram is base $\times$ height ($b \times h$).



3. Explain how the following picture "proves" that the area of a parallelogram is base $\times$ height ($b \times h$).

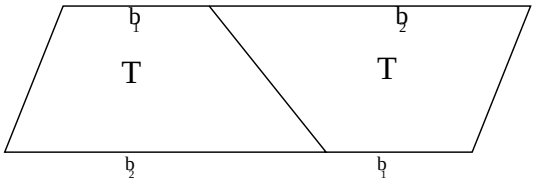


4. Geometry Giorgio draws the following picture and claims that it proves that the area of a parallelogram is base $\times$ height ($b \times h$). What is he doing wrong? How could he fix his proof?



5. Now that you know that the area of a parallelogram is base $\times$ height, explain how the following picture "proves" that the area of a trapezoid, T, is

$$A_{Trap} = \frac{1}{2}h(b_1 + b_2)$$



6. How does this picture "prove" that the area of a regular hexagon is $\frac{3}{2}Lh$?