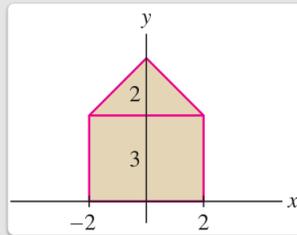# W06 Stepwise

Due date: Thursday 2/19, 11:59pm

01

> ### ✍ CoM of a house
>
> A "house" is the region bounded by the (non-regular) pentagon with vertex points at $(0, 5)$, $(2, 3)$, $(2, 0)$, $(-2, 0)$, $(-2, 3)$. Find the CoM of the house using additivity of moments.
>
>

✎ CoM of region between curves

Find the CoM of the region between the graph of $y = e^x$ and the graph of $y = 1$ over $x \in [0, 1]$.

✎ Computing improper integrals

For each integral below, give the limit interpretation of improper integral and then compute the limit. Based on that result, state whether the integral converges. If it converges, what is its value?

(a) $\displaystyle\int_1^\infty \frac{1}{x^{19/20}}\,dx$ (b) $\displaystyle\int_0^5 \frac{1}{x^{20/19}}\,dx$ (c) $\displaystyle\int_1^\infty e^{-x}\,dx$