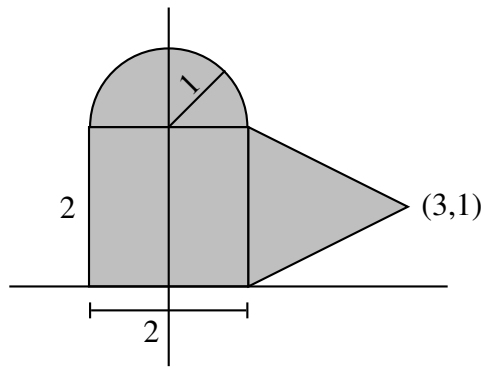


8. (10 points) Find the x -coordinate of the centroid of the shaded region below.



9. (10 total points) Consider the region bounded by $x = 1$, $x = 10$, $y = \frac{1}{x}$, and $y = \frac{1}{2x}$.

(a) (8 points) Find the centroid of this region.

(b) (2 points) Determine whether the centroid lies inside the region.

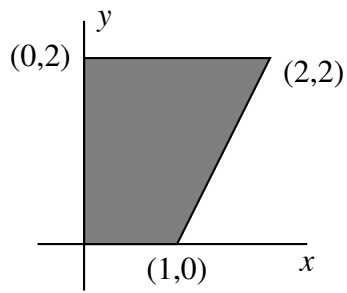
9. (10 total points) Consider the region \mathcal{R} bounded between the curves $y = 5 - x^2$ and $y = 4x^2$.

(a) (3 points) Find the area of \mathcal{R} .

(b) (3 points) Find the x -coordinate \bar{x} of the centroid (center of mass) of \mathcal{R} .

(c) (4 points) Find the y -coordinate \bar{y} of the centroid (center of mass) of \mathcal{R} .

9. (8 points) Find the x -coordinate \bar{x} of the center of mass of the region below.



9. (8 points) Consider the region bounded by the curves

$$y = x^3, \quad x + y = 2, \quad y = -\sqrt{x}.$$

The area of this region is $49/12$. Find the x -coordinate of its center of mass. Leave your answer in exact form: do not use decimal expansions.

