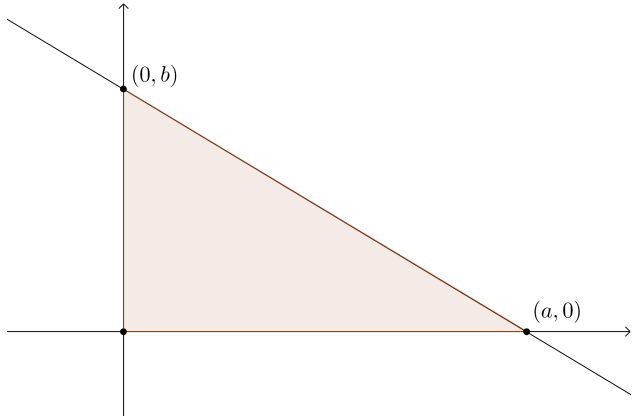


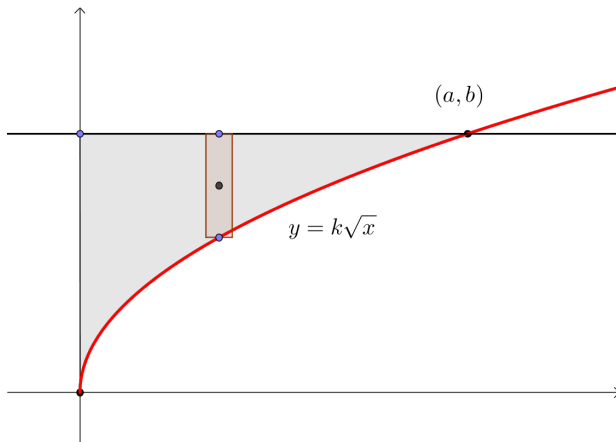
For each shape,

1. Determine the bounding function and constants in terms of known points on the curve.
2. Select strips and determine dA , \bar{x}_{el} , and, \bar{y}_{el} .
3. Use integration to determine A , Q_x , and Q_y .
4. Finally, determine the coordinates of the centroid: (\bar{x}, \bar{y})

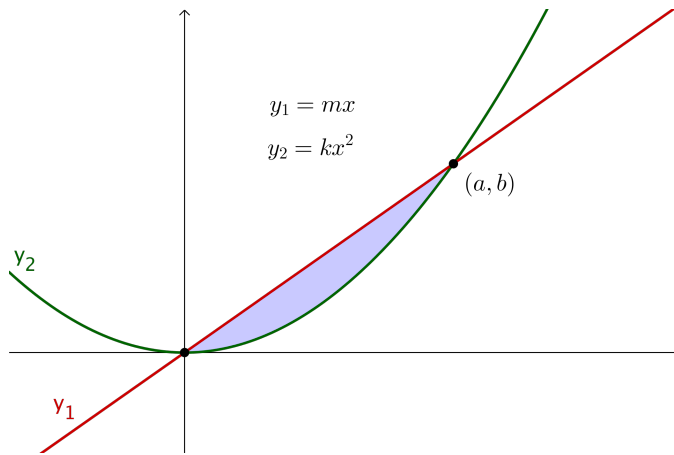
Problem 1



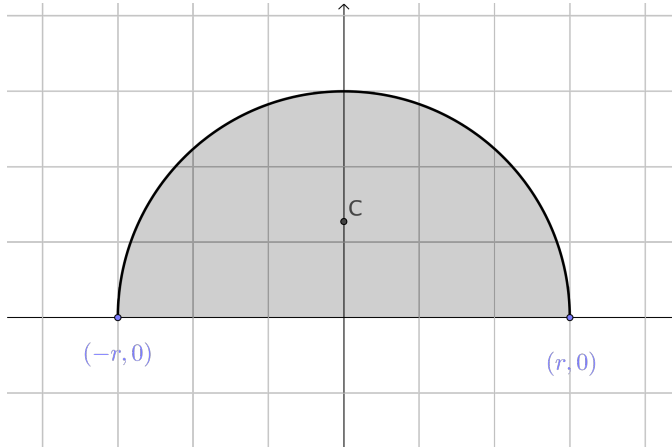
Problem 2



Problem 3



Problem 4



This is a helpful integral for this problem:

$$\int \sqrt{r^2 - x^2} dx = \frac{x}{2} \sqrt{r^2 - x^2} + \frac{r^2}{2} \sin^{-1} \left(\frac{x}{|r|} \right)$$