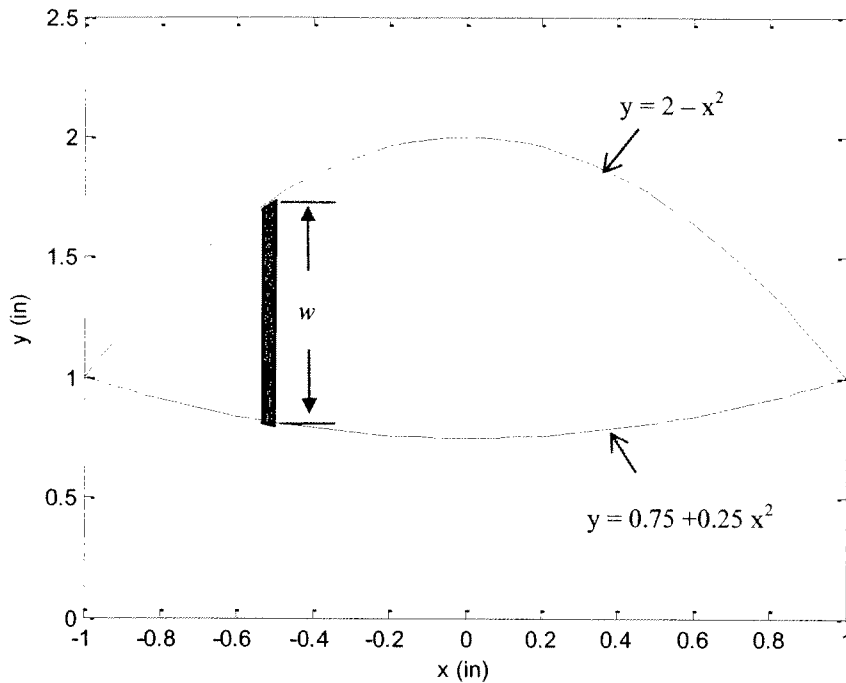


## Problem 2 – 9 points

Consider the shape below, which is defined at the top by the equation  $y = 2 - x^2$  and at the bottom by the equation  $y = 0.75 + 0.25x^2$ .



The equation for the y-centroid of the shape may be written (using a vertical strip) as

all or nothing for each  
(no partial credit)

$$y_c = \frac{\int_A \tilde{y} dA}{\int_A dA} = \frac{\int_a^b \tilde{y} w dx}{\int_a^b w dx}$$

3 pt

For the limits of integration we should choose

- $a=-1, b=0$
- $a=1, b=2$
- $a=0.75, b=2$
- $a=-1, b=1$
- other (specify \_\_\_\_\_)

3 pt

For  $dA$  we should choose

- $dA = (2 - x^2)dx$
- $dA = (0.75x^2)dx$
- $dA = (1.25 - 1.25x^2)dx$
- $dA = (2.75 - 0.75x^2)dx$
- other (specify \_\_\_\_\_)

3 pt

For the centroid of the strip we should choose

- $\tilde{y} = y$
- $\tilde{y} = (2 - x^2)/2$
- $\tilde{y} = 1.375 - 0.375x^2$
- $\tilde{y} = 0.675 - 0.675x^2$
- other (specify \_\_\_\_\_)