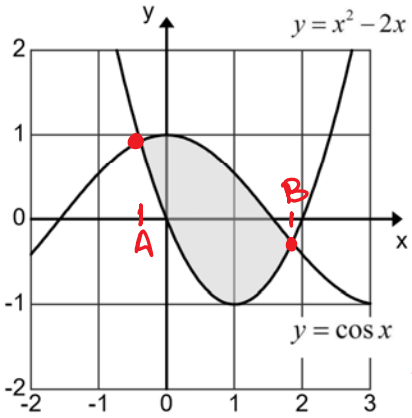
8.2 Practice Wilson

Tuesday, March 7, 2017 7:20 AM

AP Calculus AB **Name** _____
§8.2 Areas in the Plane **Period** _____

I. Find the area of the shaded region using your calculator. Show all work.

1.



$A \approx -.388$
$B \approx 1.851$

Remember:

$$Area = \int_L^R \left(T(x) - B(x)\right) dx$$

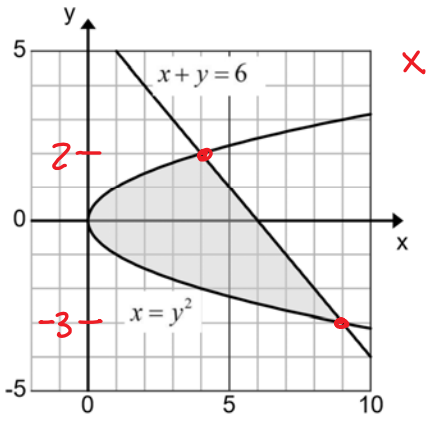
or

$$Area = \int_B^T \left(R(y) - L(y)\right) dy$$

Split the integral every time a boundary changes!

$$A = \int_A^B (\cos x - (x^2 - 2x))\, dx \approx 2.482$$

2.



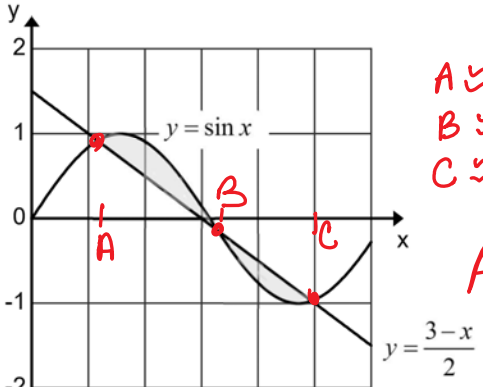
$x = -y + 6$

$$A = \int_{-3}^{2} ((-y+6) - y^2)\, dy$$

$$\approx 20.833$$

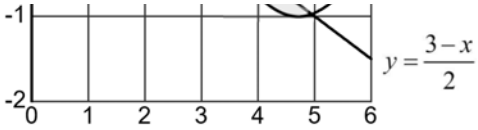
II. Find the area of the region(s) enclosed between the two functions.

3.



$A \approx 1.164$
$B \approx 3.284$
$C \approx 4.946$

$$A = \int_A^B \left(\sin x - \frac{3-x}{2}\right) dx + \int_B^C \left(\frac{3-x}{2} - \sin x\right) dx \approx .858$$



$\int_B^C \left(\frac{3-x}{2} - \sin x\right) dx \approx .858$