Math 1432

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Office Hours:

Mondays 1-2pm,
Fridays noon-1pm
(also available by appointment)

Class webpage:

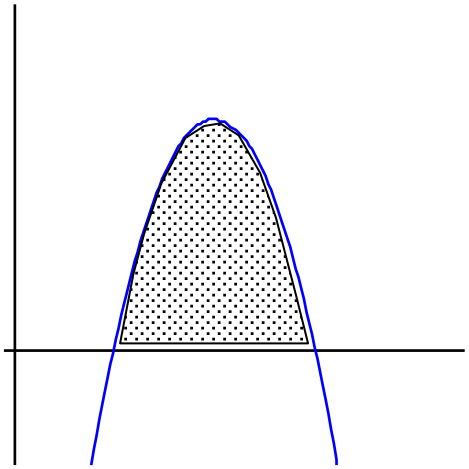
http://www.math.uh.edu/~bekki/Math1432.html

Find the average value of the function over the interval.

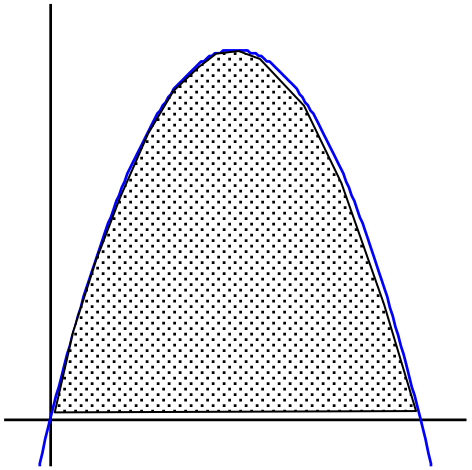
$$y = 2x + 3e^{x}, \quad [1,4]$$

Set up the definite integral(s) that gives the area of the shaded region.

$y = (1 - x)(x - 3)$

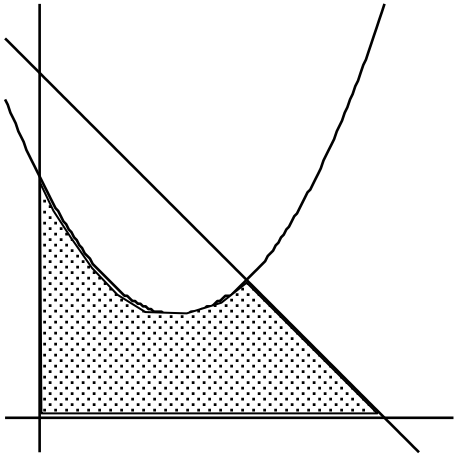


$y = 4x - x^2$



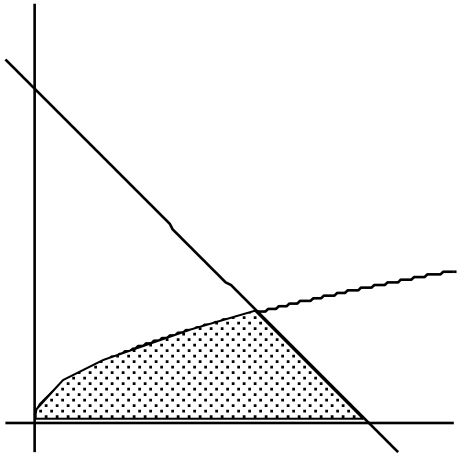
$y = x^2 - 4x + 7$

$y = 10 - 2x$



$y = 6 - x$

$y = \sqrt{x}$

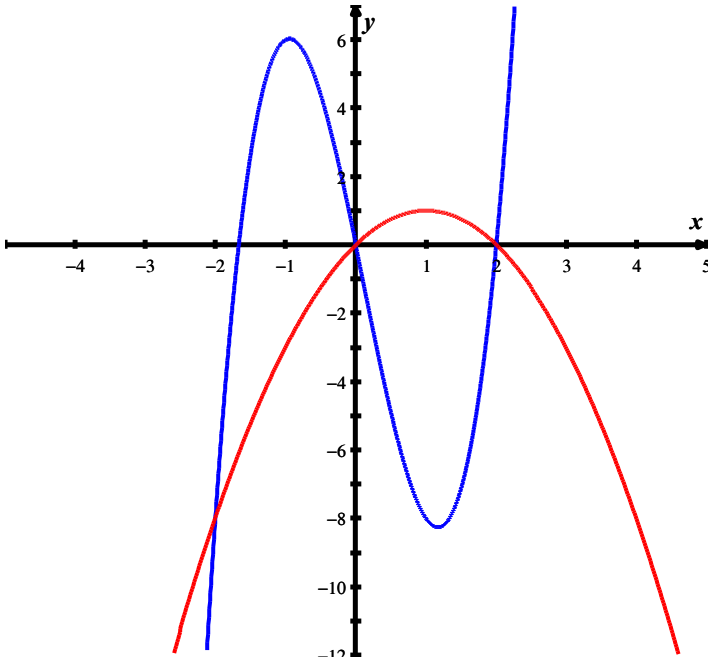


Find the area bounded by $f(x) = 3x^3 - x^2 - 10x$ and $g(x) = -x^2 + 2x$.

First, find the intersection by setting the functions equal to each other. We get $x = 0, -2, 2$.

Next, determine which function is larger on each interval. What do you do if you don't know how the functions graph?

Finally, set up the integrals.

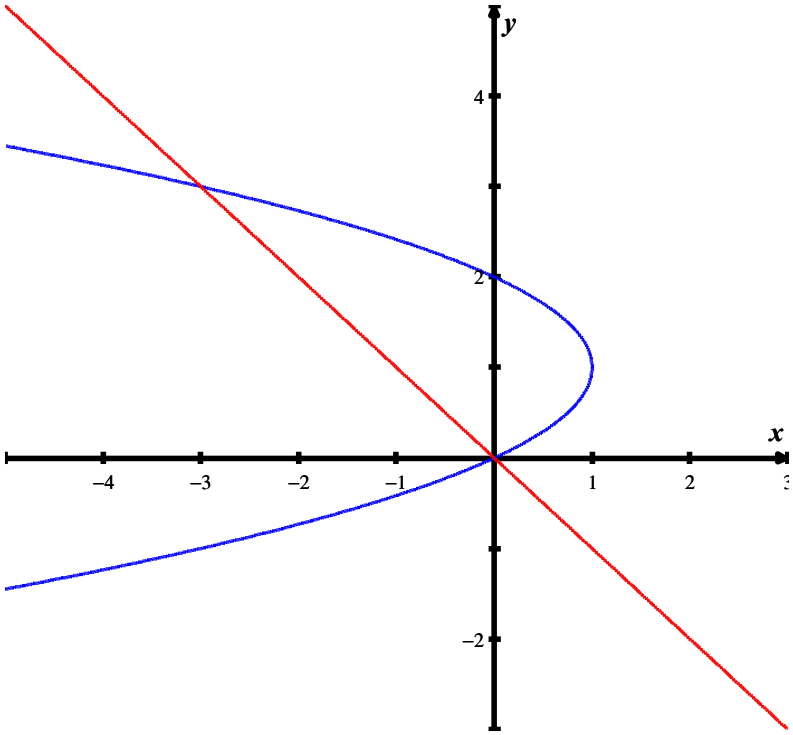


Now to change things up a bit…..

$f(y) = -(y-1)^2 + 1$ and $g(y) = -y$

First, find the intersection by setting the functions equal to each other. We get $y = 0, 3$.

Set up the integrals.



Find the area between the graphs of $y = x + 6$ and $x = -y^2$

Find the area between the graph of $f(x)=\begin{cases} x^2+1 & 0\le x\le 1 \\ 3-x & 1<x\le 3 \end{cases}$ and the x-axis.

Sketch the region bounded by the curves and find the area of that region.

$x = \sqrt{y},\ x - 2y = 0$

$x = y^2,\ x = 3 - 2y^2$

$y = |x|,\ 3y - x = 6$

How would you solve this?

Let R be the region in the first quadrant bounded by the graph of $y = 25 - x^2$ and the coordinate axes. Determine the value of *c* such that $y = cx^2$ separates R into two regions of equal area.

Use integration to find the area of the triangle whose vertices are (0, 0), (1, 3) and (1, 5).

The function $f(x) = x^3 + x$ is invertible. What is the area between the graph of $y = f^{-1}(x)$ and the *y*-axis for $0 \le y \le 2$?