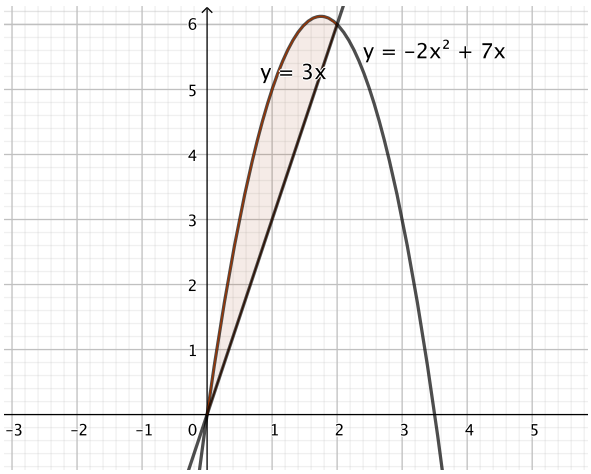
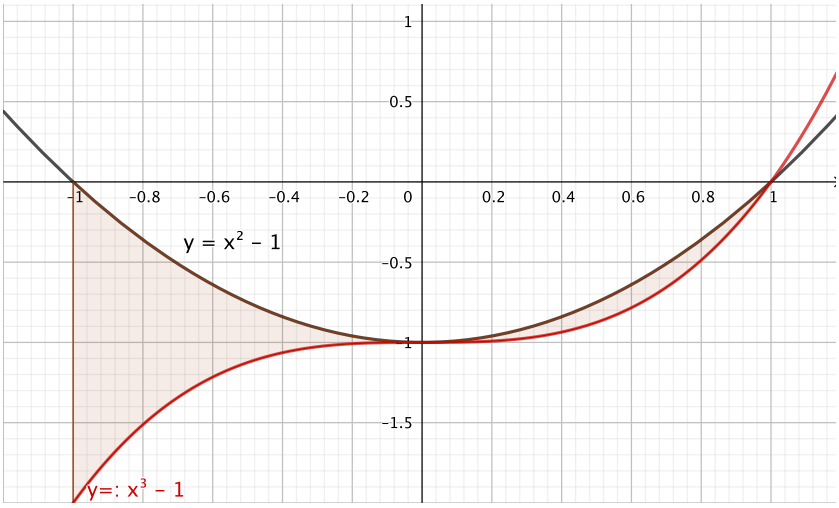
Spring 2021 MATH 76
Activity 1

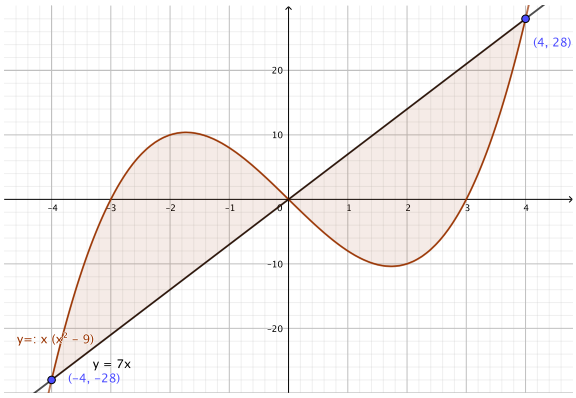
1. Find the area bounded by the graphs of $y = 3x$ and $y = -2x^2 + 7x$ in the first quadrant.



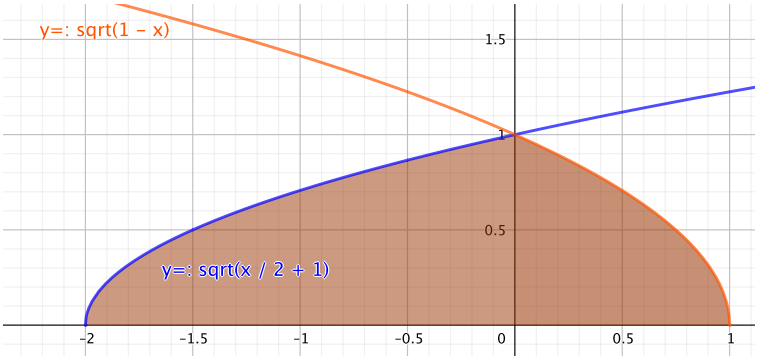
2. Find the area bounded by the graphs of $y = x^2 - 1$, $y = x^3 - 1$, the vertical lines $x = -1$, and $x = 1$.



3. Find the shaded area on the graph below. The two functions are $y = 7x$ and $y = x(x^2 - 9)$.



4. The goal of this problem is to evaluate the shaded area by using two methods.



(a) Method 1

i. Write the area as an integral (possibly two) in x.

ii. Solve it.

(b) Method 2. Rotate and flip the figure so that the $y-$ axis is horizontal and the $x-$axis is vertical.

i. Solve for x in each of the expressions of the functions (to obtain two functions of y).

ii. Write the area as an integral (possibly two) in y.

iii. Solve it.

(c) State the advantages and drawbacks of each method.