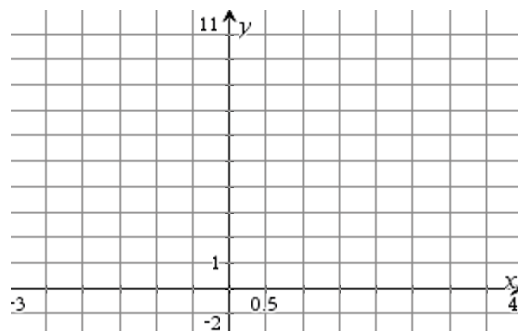


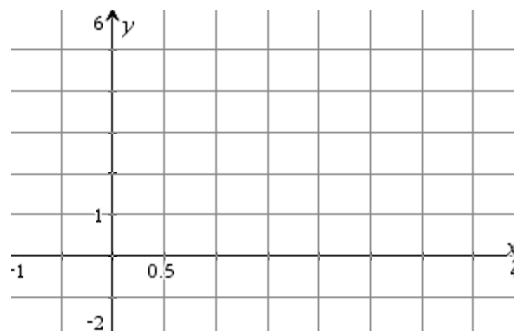
### Skill Builder: Topics 8.4-8.6 – Area Between Curves

For each problem, sketch the region bounded by the graphs of the functions and find the area of the region. Problems marked a calculator icon indicate that you can use your calculator to evaluate the definite integral.

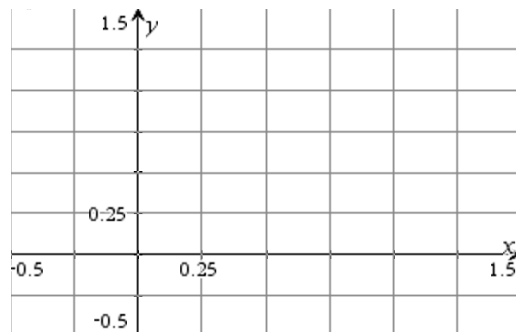
1.)  $y = x^2 + 2x + 1, y = 2x + 5$



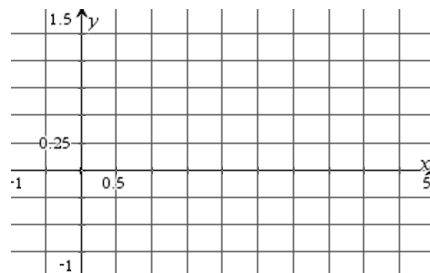
2.)  $y = x^2 - 4x + 3, y = -x^2 + 2x + 3$



3.)  $y = x^2, y = x^3$

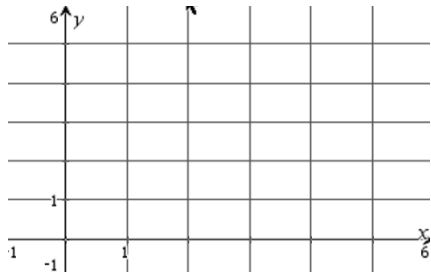


4.)  $y = \frac{1}{x^2}, y = 0, x = 1, x = 5$

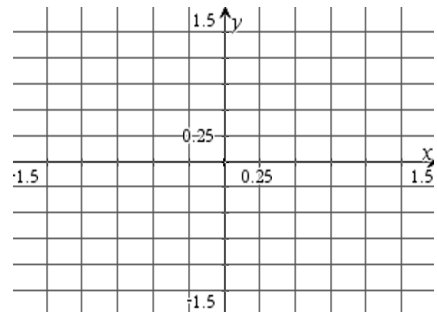




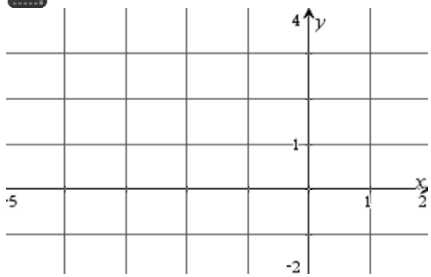
5.)  $y = \sqrt{3x + 1}, y = x, x = 0$



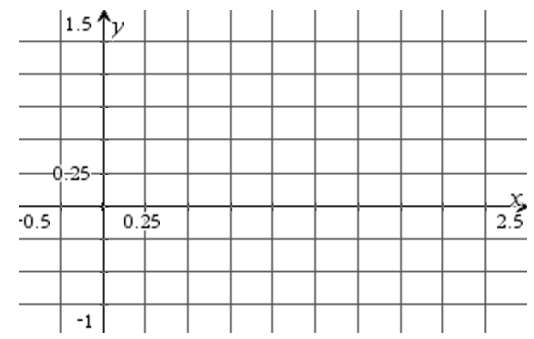
6.)  $y = \sqrt[3]{x}, y = x$



7.)  $x = 2y - y^2, x = -y$

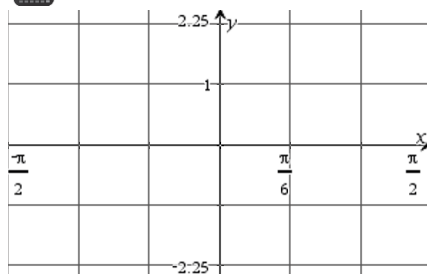


8.)  $y = (x - 1)^3, y = x - 1$

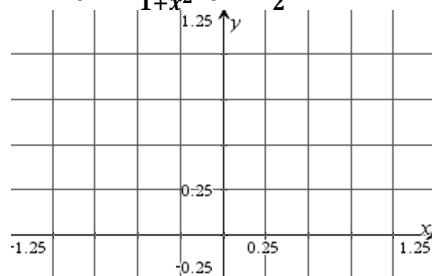




9.)  $y = 2 \sin x, y = \tan x$

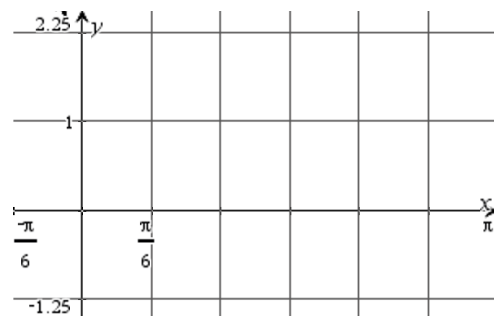


10.)  $y = \frac{1}{1+x^2}, y = \frac{1}{2}x^2$

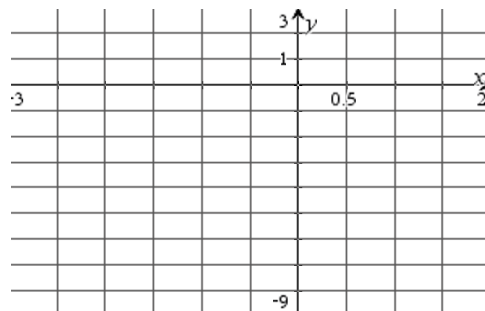


11.)  $y = 2 \sin x, y = \cos 2x$

Use your calculator to find intersection points as well.



12.)  $y = x^3$  and the tangent to  $y$  at  $(1, 1)$



13.) Find the value(s) of  $b$  if the vertical line  $x = b$  divides the region between  $y = 16 - 2x$  and the  $x$ -axis and  $y$ -axis into 2 equal regions.