

8.4 Area Between Curves (with respect to x)

Calculus

Name: _____

CA #1

Find the area of the region bounded by the following graphs. Show your work.

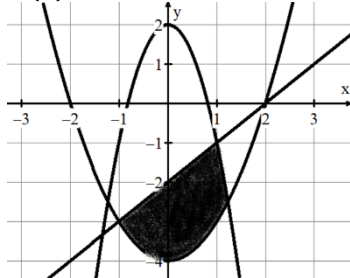
1. $y = x^2 - 4x - 5$ and $y = 2x - 5$

2. $y = 3x^2, y = 0, x = 1, x = 3$

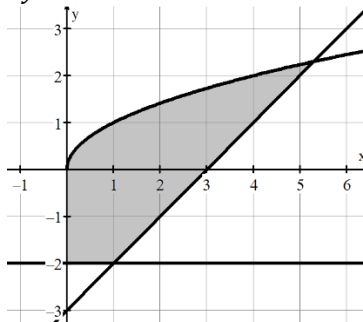
3. $y = \ln x, y = -\sqrt{x}$, and $x = 3$

Set up an integral(s) that represents the shaded region. Do not solve. Use a calculator if necessary to help find the lower and upper bounds.

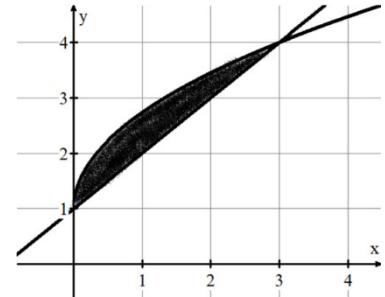
4. $f(x) = x^2 - 4$, $g(x) = x - 2$,
 $h(x) = 2 - 3x^2$



5. $y = \sqrt{x}$, $y = x - 3$, $x = 0$ and
 $y = -2$

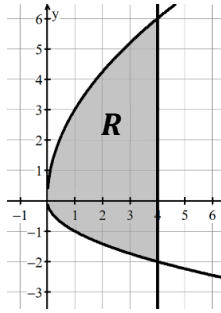


6. $f(x) = \sqrt{3x} + 1$, $g(x) = x + 1$

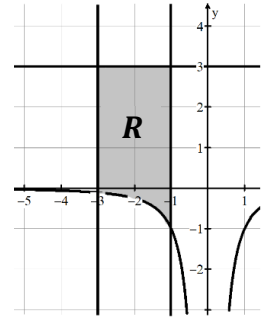


Let R be the region bounded by the given curves as shown in the figure. If the line $x = k$ divides R into two regions of equal area, find the value of k

7. $y = 3\sqrt{x}$, $y = -\sqrt{x}$ and $x = 4$



8. $y = -\frac{1}{x^2}$, $y = 3$, $x = -3$, and $x = -1$



Answers to 8.4 CA #1

1. 36	2. 26	3. $\int_{0.4948664}^3 \ln x + \sqrt{x} dx = 4.3708$	4. $\int_{-1}^1 (-x^2 + x + 2) dx + \int_1^A (-4x^2 + 6) dx$ where $A = 1.224744871$
5. $\int_0^1 (\sqrt{x} + 2) dx + \int_1^A (\sqrt{x} - x + 3) dx$ where $A = 5.3027756$	6. $\int_0^3 (\sqrt{3x} - x) dx$	7. $k \approx 2.5198$	8. $k \approx -1.9488$