

Practice: Area Between Curves

- For the problems below, set up the integral(s) that represent the area bounded by the curves. Evaluate the integrals "by hand".

- $f(x) = x^2 - x$ $g(x) = 2x$ for $[-2, 3]$
- $f(x) = e^x - 2$ $g(x) = 0$ for $[-2, 0]$
- $f(x) = x^2 - 1$ $g(x) = 0$ for $[-1, 3]$

- For the problems below, set up the integral(s) that represent the area bounded by the curves. Evaluate the integrals using the functions (calc intersect, fnInt-under the math button) on your calculator.

$$\circ \int_a^b (f(x) - g(x)) dx \rightarrow \text{fnInt}(f(x)-g(x), x, a, b)$$

- $f(x) = 2x^3 - x^2 - 14x$ $g(x) = 4x - x^2$
- $f(x) = (x - 1)^3$ $g(x) = x - 1$
- $f(x) = \frac{x^2}{2} - 2x$ $g(x) = \frac{-x}{2} + 2$
- $f(x) = \frac{x^2}{2} - 2x$ $g(x) = \frac{-x}{2} + 2$ for $[2, 6]$
- $f(x) = 2\sqrt{x}$ $g(x) = \frac{x^2}{4}$
- $f(x) = x^3 - 9x$ $g(x) = 9 - x^2$
- $f(x) = \frac{-x^3}{2} + 2x^2$ $g(x) = -x^2 + 4x$
- $f(x) = 2x^2 - 8x + 10$ $g(x) = \frac{x^2}{2} - 2x - 1$ for $[1, 3]$
- $f(x) = -2x^2 - 1$ $g(x) = -x + 3$ for $[0, 1]$
- $f(x) = -x^3 + 6x$ $g(x) = -x^2$