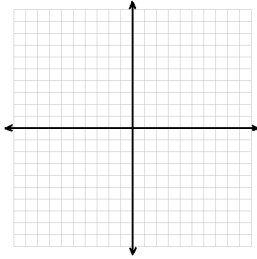
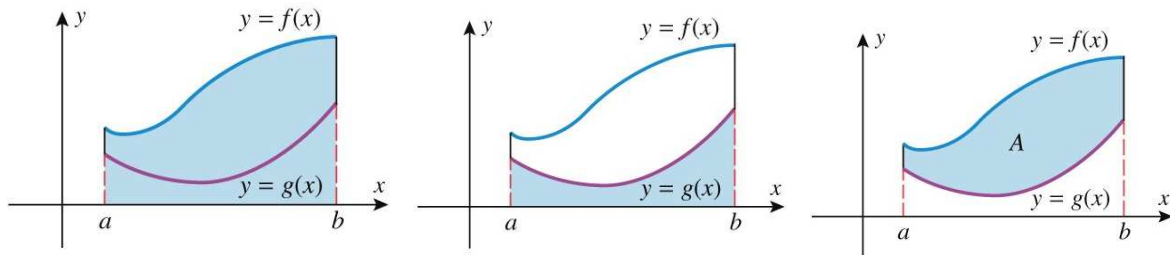


Area Between Two Curves (Calculus Section 6.1)

Warm up: Sketch $y = \sqrt{x}$



Area Between Curves



Area Between Two Curves Formula

$$A = \int_a^b [f(x) - g(x)] dx$$

Example 1: Find the area of the region bounded above by $y = x + 6$, bounded below by $y = x^2$, and bounded on the sides by the lines $x = 0$ and $x = 2$.

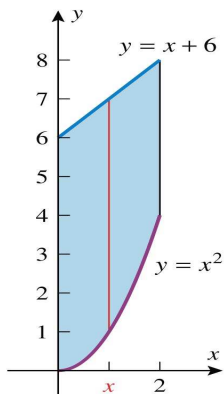
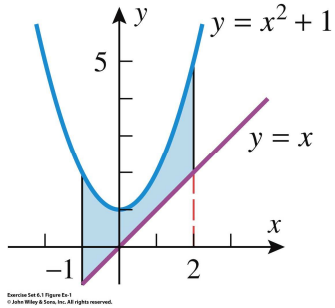


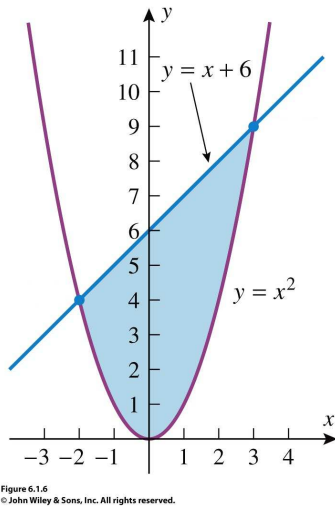
Figure 6.1.4
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Area Between Two Curves (Calculus Section 6.1)

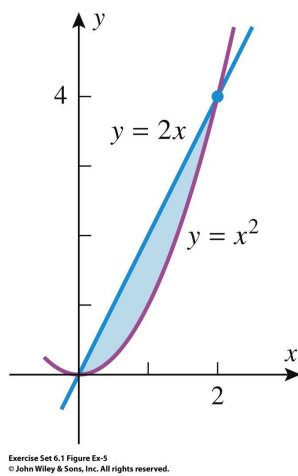
Practice Problem 1: Find the area of the shaded region.



Example 2: Find the area of the region that is enclosed between the curves $y = x^2$ and $y = x + 6$.

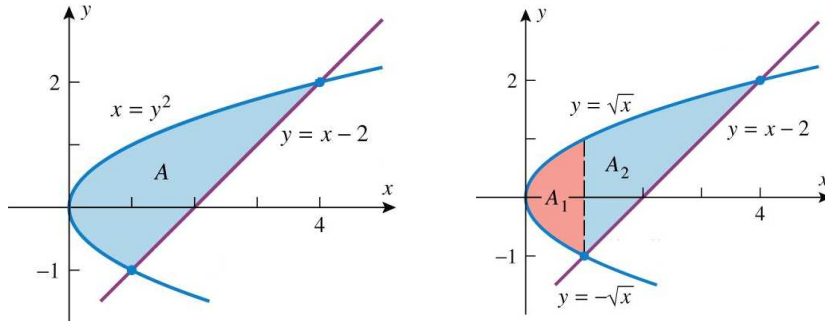


Practice Problem 2: Find the area of the shaded region.

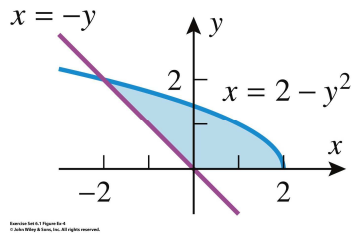


Area Between Two Curves (Calculus Section 6.1)

Example 3: Find the area enclosed by $x = y^2$ and $y = x + 2$.



Practice Problem 3: Find the area of the shaded region.



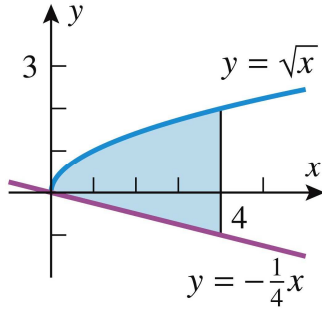
Example 4: Sketch the region enclosed by $y = x^2$, $y = \sqrt{x}$, $x = \frac{1}{4}$, $x = 1$ and find its area.

Area Between Two Curves (Calculus Section 6.1)

Class Work

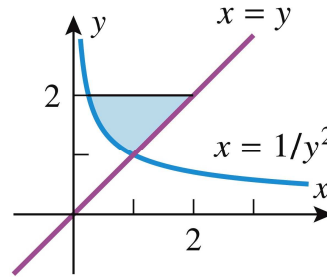
Find the area of the shaded region.

1.



Exercise Set 6.1 Figure Ex-2
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2.



Exercise Set 6.1 Figure Ex-3
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3. Sketch the region enclosed by $y = x^3 - 4x$, $y = 0$, $x = 0$, $x = 2$ and find its area.