



Calculus 2 Workbook

Area between curves

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MATH

AREA BETWEEN UPPER AND LOWER CURVES

- 1. Find the area, in square units, between the two curves. Round your answer to two decimal places.

$$f(x) = -2x^2 + 7$$

$$g(x) = -x + 3$$

- 2. Find the area, in square units, between the two curves.

$$f(x) = -3x^2 + 9x$$

$$g(x) = 3x^2 - 9x$$



AREA BETWEEN LEFT AND RIGHT CURVES

- 1. Find the area, in square units, between the two curves. Round your answer to two decimal places.

$$f(y) = 2y^2 + 12y + 15$$

$$g(y) = -2y^2 - 12y - 15$$

- 2. Find the area, in square units, between the two curves, and between $y = -2$ and $y = -5$.

$$f(y) = 2y^2 + 12y + 19$$

$$g(y) = -\frac{y^2}{2} - 4y - 10$$

- 3. Find the area, in square units, between the two curves.

$$f(y) = -y^3 + 6y$$

$$g(y) = -y^2$$

- 4. Find the area, in square units, between the two curves.



$$f(y) = \frac{y^2}{2} - 3y - \frac{1}{2}$$

$$g(y) = 3$$

- 5. Find the area, in square units, between the two curves, and between $y = 0$ and $y = 4$.

$$f(y) = 2y^2 - 8y + 9$$

$$g(y) = \frac{y^2}{2} - 2y - 1$$



SKETCHING THE AREA BETWEEN CURVES

- 1. Find the area of the region in the first quadrant that's enclosed by the graphs of the curves.

$$y = \sqrt{x}$$

$$y = x - 2$$

- 2. Find the area of the region that's enclosed by the graphs of the curves.

$$y = x^3$$

$$y = \sqrt{x + 2}$$

$$y = -\sqrt{x + 2}$$

- 3. Find the area of the region that's enclosed by the graphs of the curves.

$$y = 2x^2$$

$$y = x^4 - 2x^2$$



DIVIDING THE AREA BETWEEN CURVES INTO EQUAL PARTS

- 1. The line $x = k$ divides the area bounded by the curves into two equal parts. Find k .

$$f(x) = 4x - x^2$$

$$g(x) = 5 - 2x$$

- 2. The line $x = k$ divides the area bounded by the curves into two equal parts, for $x > 0$. Find k . Round your answer to the nearest three decimal places.

$$f(x) = x^3 - 12x$$

$$g(x) = x^2$$

- 3. The line $x = k$ divides the area bounded by the curves on $\pi/4 \leq x \leq 5\pi/4$ into two equal parts. Find k .

$$f(x) = \sin x$$

$$g(x) = \cos x$$



