

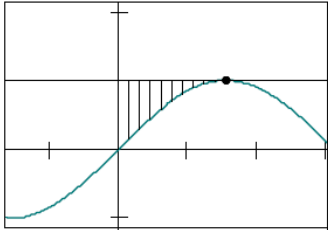
These problems are a little trickier because the region bounded does not involve the x -axis.

For these problems, you must:

- Graph the given functions to find the enclosed region that you will find the area of
- Write down: *Top function* - *Bottom function* (in terms of x only)
- Find the values for a and b (A little Algebra)

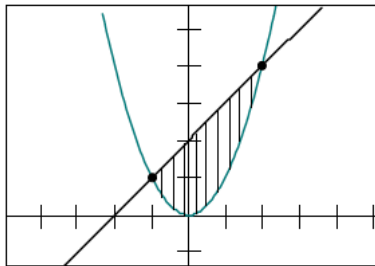
- Integrate to find area: $\text{Area} = \int_a^b (\text{Top} - \text{Bottom}) dx$

1. Lying in the first quadrant and bounded by the curves $y = \sin x$, $y = 1$, and $x = 0$



- What function is on *Top* of the shaded region? On the *Bottom*?
- What is *Top* - *Bottom*?
- What is a ? b ?
- Write the appropriate integral and find the area.

2. Bounded by the parabola $y = x^2$ and the line $y = x + 2$



- What function is on *Top* of the shaded region? On the *Bottom*?
- What is *Top* - *Bottom*?
- What is a ? b ?
- Write the appropriate integral and find the area.

Find the total area between the curve and the x -axis in the given interval.

3) $y = 4 - x$ on $[0, 6]$	4) $y = \cos x$ on $[0, \pi]$
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Find the area of the shaded region analytically

<p>5)</p>	<p>6)</p>
<p>7)</p>	<p>8)</p>

Find the area of the regions enclosed by the graphs of the curves. (Hint: find a and b)

9) $y = x^2 - 2$ and $y = 2$	10) $y = 7 - 2x^2$ and $y = x^2 + 4$
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Answers:

3) 10	4) 2	5) $\frac{\sqrt{2}}{2}$	6) $\frac{22}{15}$
7) $\frac{5}{6}$	8) 16	9) $10\frac{2}{3}$	10) 4