

Ch. 7.1 Area between Curves
Notes/Homework

$$Area = \int_{x_1}^{x_2} (Top\ graph - Bottom\ graph) dx$$

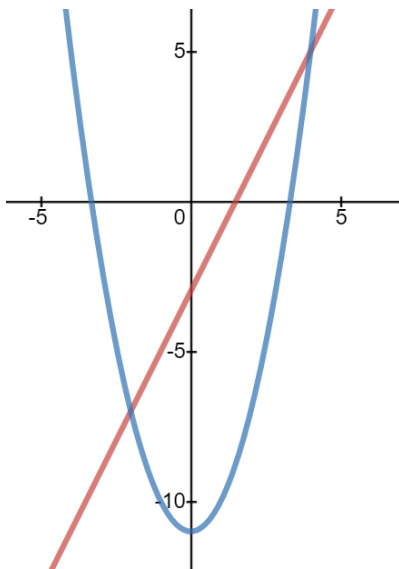
Steps: 1) Find intersection (bounds) by setting equations equal and solving for x.

2) Identify Top graph and bottom graph: Set up to find Area using Integral Notation

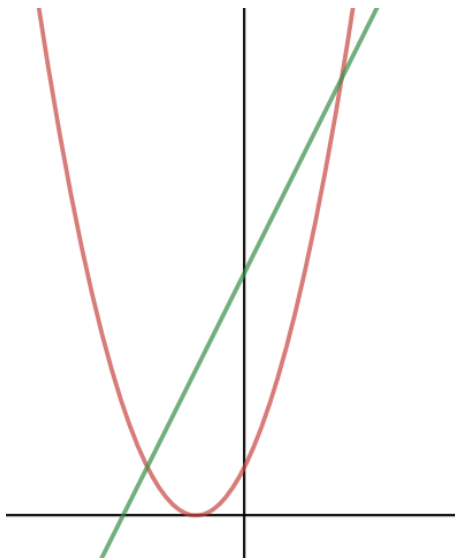
3) Evaluate bounds to find the Area of enclosed region between the 2 graphs or

4) Enter into calculator to find Volume. (TI-84: Math 9 → FnInt or TI-36X Pro: 2nd → e) or use the **online definite integrals calculator**

Example 1: Find area between the 2 graphs: $y = x^2 - 11$ and $y = 2x - 3$



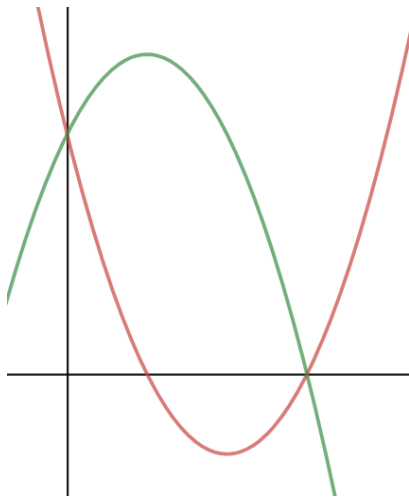
Example 2: Find the area between the 2 graphs: $y = x^2 + 2x + 1$ and $y = 2x + 5$



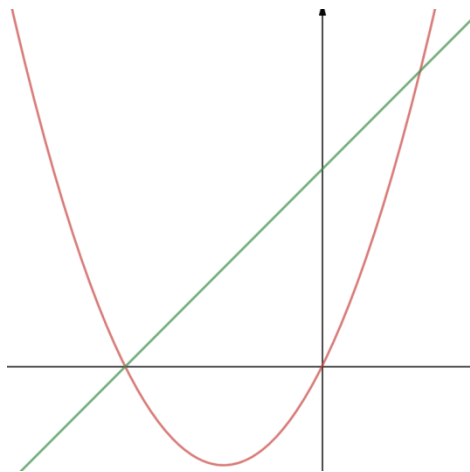
$$Area = \int_{x_1}^{x_2} (\text{Top graph} - \text{Bottom graph}) dx$$

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Example 3: Find the area between the 2 graphs: $y = x^2 - 4x + 3$ and $y = -x^2 + 2x + 3$



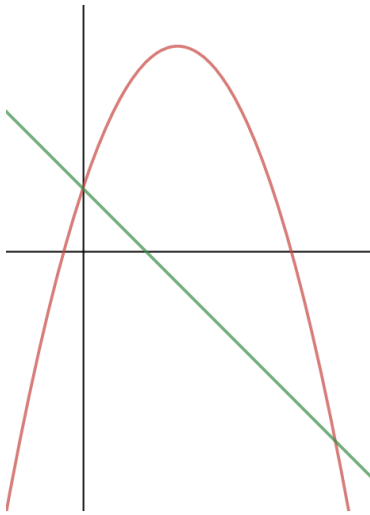
Example 4: Find the area between the 2 graphs: $y = x^2 + 2x$ and $y = x + 2$



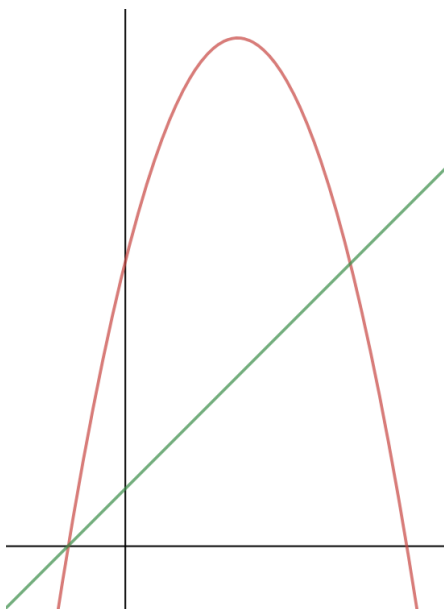
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Example 5: Find the area between the 2 graphs: $y = -x^2 + 3x + 1$ and $y = -x + 1$



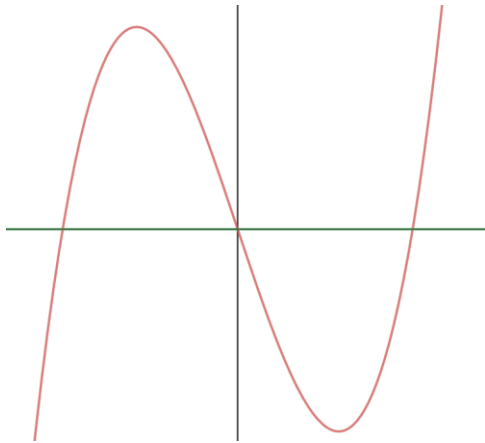
Example 6: Find the area between the 2 graphs: $y = -x^2 + 4x + 5$ and $y = x + 1$



$$\text{Area} = \int_{x_1}^{x_2} (\text{Top graph} - \text{Bottom graph}) dx$$

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Example 7: Find the area between the 2 graphs: $y = 3x^3 - 3x$ and $y = 0$



Example 8: Find the area between the 2 graphs: $y = (x - 1)^3$ and $y = (x - 1)$

