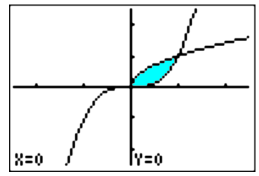
# The Area of a Region Bounded by Two Graphs

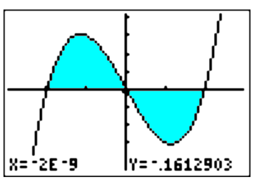
1. Find the area of the region.
(Similar to p.357 #1-8)

$$f(x) = \sqrt{x}$$
$$g(x) = x^3$$




2. Find the area of the region.
(Similar to p.357 #1-8)

$$f(x) = x^3 - 4x$$
$$g(x) = 0$$




3. Sketch the region bounded by the graphs of the functions and find the area of the region.
(Similar to p.358 #15-30)

$$y = x^2 + 3x + 2,\ y = 3x - 5,\ x = -1,\ x = 2$$

4. Sketch the region bounded by the graphs of the functions and find the area of the region.
(Similar to p.358 #15-30)

$$y = x^2 - 5x + 2,\ y = 2 + 3x - x^2$$

5. Sketch the region bounded by the graphs of the functions and find the area of the region.
(Similar to p.358 #15-30)

$$y = \sqrt[5]{x},\ y = x$$

6. Sketch the region bounded by the graphs of the functions and find the area of the region.
(Similar to p.358 #15-30)

$$y = x^2 + 6x,\ y = 5x + 6$$

7. Find the consumer and producer surpluses by using the demand and supply functions, where p is the price (in dollars) and x is the number of units (in millions).
(Similar to p.358 #41-46)

| Demand Function | Supply Function |
|---|---|
| p = 200 – x | p = 90 + x |

Hint : To find price, set demand equal to supply and solve, then plug this x into either formula to find p then :

$$\text{Consumer surplus} = \int_0^x (\text{demand function - price})\, dx$$

$$\text{Producer surplus} = \int_0^x (\text{price - supply function})\, dx$$