Calculus Notes Area & Volume

If *f* and *g* are continuous function on and  for all x in, then the area of the region bounded by the graphs of *f* and *g* and the vertical line x = a and x = b is:

Area =

Ex: Find the area of the region bounded by the graphs  and the line .

(We must find where they intersect first)

Ex: Find the area of the region bounded by the graphs  and the line .

Ex: Find the area of the region bounded by the graphs ,, x = 0, and x = 1.

Ex: The sine and cosine curves intersect indefinitely many times, bounding regions of equal areas.

Find the area of one of these regions.

Ex: Find the area in the first quadrant bounded above by and below by the x-axis and the

line .

Ex: What if we integrated with respect to y?

Ex: Find the area of the region between the graphs and.

Ex: Find the area of the region bounded by the graphs , .

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