MATH 3B WORKSHEET 6

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1. Area between Curves

1.1. **Quick Review.** Draw a picture illustrating area between two curves, and write the formula of which you are going to use in order to evaluate the area.

1.2. **Exercises: Find the areas.**

(1) The area bounded by $y = \sqrt[3]{x}$, $y = 1/x$ and $x = 8$.

(2) The area bounded by $y = \sqrt{2x+6}$, $y = -\sqrt{2x+6}$, $y = x - 1$.

(3) The area bounded by $x = 1 - y^2$, $x = y^2 - 1$.

(4) The area bounded by $y = \frac{1}{4}x^2$, $y = 2x^2$, $x + y = 3$, where $x \geqslant 0$.

2. Finding Volume with Disk Method

2.1. **Quick Review.** Draw a picture illustrating the volume of which we are evaluating by using disk method, and write the formula of which you are going to use in order to evaluate the volume.

2.2. **Exercises: Find the volumes.**

(1) The solid obtained by rotating the region bounded by $y = \sqrt{x-1}$, $y = 0$, $x = 5$ about the x-axis.

(2) The solid obtained by rotating the region bounded by $y = x$, $y = \sqrt[4]{x}$ about the x-axis.

(3) The solid obtained by rotating the region bounded by $y = x$, $y = \sqrt[4]{x}$ about the y-axis.

(4) *The solid obtained by rotating the region bounded by $xy = 1$, $y = 0$, $x = 1$, $x = 2$ about the line $x = -1$.

(5) The torus as shown in the graph.