

## Math 2B Worksheet: 6.1 Area Between Curves

*Write your names and Student ID numbers at the top of the page*

1. Sketch the region enclosed by the given curves and find its area.

(a)  $y = x^2$ ,  $y = 4x - x^2$

(b)  $y = x^4$ ,  $y = 2 - |x|$

2. Find the area between the top (positive) half of a circle of radius 1 and  $y = \frac{3}{5}\sqrt{1-x^2}$

3. For  $0 \leq x \leq 1$  and  $0 \leq y \leq 1$  complete the following problems.

(a) Sketch the region enclosed by the curves  $x = y^2$  and  $y = x^2$  and find its area.

(b) Let  $n \geq 2$ . Find the area of the region enclosed by the curves  $x = y^n$  and  $y = x^n$ .  
What happens to the area as  $n \rightarrow \infty$ ?