

AP Calculus BC

Lesson 6.1 Area between curves

1. (a) Find the area between the curve  $f_1(x) = \cos(x)$  and the  $x$ -axis for  $-\frac{\pi}{2} \leq x \leq \frac{\pi}{2}$ .

(b) Find the area between the curve  $f_2(x) = x^2 - \frac{\pi^2}{4}$  and the  $x$ -axis for  $-\frac{\pi}{2} \leq x \leq \frac{\pi}{2}$ .

(c) Find the area between  $f_1$  and  $f_2$  for  $-\frac{\pi}{2} \leq x \leq \frac{\pi}{2}$ .

2. Find the area of the region bounded by the curves  $y = x^2$  and  $y = -x^2 + 4x$ .

3. Find the area of the region bounded by the parabola  $y^2 = 2x - 2$  and the line  $y = x - 5$ .

4. Find the area of the region bounded by the line  $y = x - 1$  and the parabola  $y^2 = 2x + 6$ .

5. Find the area of the region bounded by the curves  $y = x^3 - 6x^2 + 8x$  and  $y = x^2 - 4x$ .