

Week 1 Recitation Problems

MATH:114, Recitations 309 and 310

1. Graph (shade) the region bounded by the following curves in the first quadrant:

(a) $y = f(x) = (x + 1)^2 + 1$

(b) $y = g(x) = 9 - 4x$

(c) The y -axis.

2. Write one (or two) x -integrals that give the exact area of this region. Using your integral(s), compute this area.

3. Write one (or two) y -integrals that give the exact area of this region. Using your integral(s), compute this area.

Let's check our work by answering some questions:

1. Are your results for questions 2 and 3 the same?
2. Can you find a way to *approximate* the area between the curves? (Hint: use a bit of geometry!)
3. How does your approximation compare to the values you computed in (2) and (3)?

4. Repeat the same process with these curves:

1. $f(x) = x^3$
2. $g(x) = 2 - x^2$
3. the x -axis.