

MTH 346 HWK 1, DUE: Friday 4/6

1. Write the following as rational numbers. Show all work. No calculator.

(a) $0.\overline{23}$

(b) $0.34\overline{56}$

2. Write the following as decimal numbers. Show all work. No calculator

(a) $\frac{1}{16}$

(b) $\frac{1189}{4995}$

3. Prove that $0.\overline{9} = 1$

4. Prove that the sum of an odd integer and an even integer is always odd.

5. Let a and b be rational number with $b \neq 0$. Prove that $\frac{a}{b}$ is a rational number.

6. Use proof by contradiction to show that the circle with equation $x^2 + y^2 = 4$ does not intersect the line $y = x + 4$.