A few problems on real numbers

1. Write the number 1.35294 as a ratio of integers.

2. Write the number $2.\overline{736}$ as a ratio of integers.

3. Write the number $0.\overline{9}$ as a ratio of integers.

4. Give the decimal representation of some irrational number. Give one that we have not done as an example in class. Give a complete description that allows a reader to determine as many digits of the number as desired.

5. Consider using your calculator to compute $1 - x$ for different values of x. For example, $1 - 0.1$ returns a result of 0.9. Determine the smallest value of x for which your calculator will return the correct value of $1 - x$.

6. Decide if the following statement is true or false: *Between any two real numbers, there is at least one rational number and at least one irrational number.* Write an argument to support your conclusion.

7. Decide if the following statement is true or false: *Between any two real numbers, there are infinitely many rational numbers and infinitely many irrational numbers.* Write an argument to support your conclusion.