

### Math5900 Homework #3

Answer these questions (use a separate sheet of paper if you need more space). Make sure your work is neatly presented. Show all your work, with thorough explanations.

1. Tell whether the following numbers are rational or irrational.

- (a) 2.375375...
- (b) 3.012012301234...
- (c)  $\sqrt{169}$
- (d)  $2\pi$
- (e)  $3.\overline{12}$
- (f)  $\sqrt{7}$
- (g)  $\frac{35}{0.72}$
- (h) 5.626626662...

2. Find three irrational numbers between 2 and 3.

3. Arrange these numbers in increasing order.

$0.876$	$0.\overline{876}$	$0.8\overline{76}$	$0.876787677876...$
$0.\overline{8766}$	$0.8766876667...$	$0.8767876677887666...$	

4. Place these numbers into the proper location in the real number system Venn diagram.

- |                         |                      |
|-------------------------|----------------------|
| (a) 0                   | (n) $0.121121112...$ |
| (b) 97                  | (o) $0.\overline{2}$ |
| (c) 0.78                | (p) -0.32            |
| (d) $0.\overline{9}$    | (q) $\frac{8}{2}$    |
| (e) $0.142857142857...$ | (r) 3.14             |
| (f) $\frac{3}{4}$       | (s) $\sqrt{2}$       |
| (g) $\pi$               | (t) $\sqrt{-5}$      |
| (h) 38%                 | (u) 1                |
| (i) $0.\overline{43}$   |                      |
| (j) -1                  |                      |
| (k) $\frac{-2}{3}$      |                      |
| (l) $\sqrt{16}$         |                      |
| (m) $\frac{22}{7}$      |                      |

Also, from the book, do these problems: pg 30 #1, 3 pg 51-52 #2-8 all, 15, 16