

# Math 115- HW1 Suggested Problems

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**Instruction:** Do all problems below. Remember to show all your work- **the answer is not enough**. This problem set will **not** be collected nor graded. However, you should prepare all work **as if it will be graded**. Rather, we will have a quiz over the material on Tuesday, August 29.

1) Determine if the following objects are sets. If so, state why. If the given object is not a set, justify your answer.

- $\mathbb{N} = \{0, 1, 2, \dots\}$
- $\{1, 1, 2, 3, 5, 8, 13, 21\}$
- $\{A, B, C, D, F\}$
- $\sqrt{2}$
- $\{\sqrt{2}\}$
- $\{\}$
- $(3, 5)$
- $\{(3, 5)\}$
- $\{(3, 5), (5, 3)\}$

2) Write each rational number in fraction form. You need not reduce your fractions. Show all work.

- 7
- 1.25
- 3.14159
- $0.\overline{21}$
- 5.15151515...
- $0.\overline{13}$
- $6.\overline{723}$

3) Are the following real numbers rational or irrational?

- $\sqrt{2}$
- $\sqrt{36}$
- $\sqrt{3}$
- $\sqrt{64}$
- 0.12121212...
- 0.1001000100001...
- 0
- -6