

CSCI 480, Spring 2018

Math Exercises #1

YOUR NAME HERE

Due date: Monday, April 23, Midnight

- To make grading easier, please include the question with the answer.
- Show your work and explain your answer. If the answer is an integer, I need to know how you got it.

1. Explicitly write out the contents of the following set:

$$\{X \in \mathcal{P}(\{1, 2, 3\}) : 2 \in X\}$$

2. Negate the following statement:

If x is a rational number and $x \neq 0$, then $\tan(x)$ is not a rational number.

3. Compute how many 7-digit numbers can be made from the digits 1,2,3,4,5,6,7 if there is no repetition and the odd digits must appear in an unbroken sequence. Examples: 3571264 or 2415376 or 2467315, but not 7234615.
4. This problem concerns 4-card hands dealt off a standard 52-card deck. How many 4-card hands are there for which all 4 cards are of different suits or all 4 cards are red?