MATH 102: IDEAS OF MATH

WORKSHEET 5

Important notations:
(1) $\wedge$ stands for "and"
(2) $\vee$ stands for "or"

Question 1. What is a set? What is the set-builder notation?

Question 2. Write the descriptions of
(1) Natural numbers

(2) Rational numbers

(3) Real numbers

(4) 3×3 real matrices

(5) Points on the circle of radius r

Question 3. What does it mean for $A \subseteq B$?

Question 4. Prove that
$$\{x \in \mathbb{N} : 10 \mid n\} \subseteq \{x \in \mathbb{N} : 2 \mid n\}$$

Question 5. Prove that the empty set is a subset of every set.

Question 6. Prove that
$$\{n \in \mathbb{Z} : 12 \mid n\} = \{n \in \mathbb{Z} : 3 \mid n \ \wedge \ 4 \mid n\}$$