Your Name
Topology through Inquiry
Professor Allcock
Date Here

Theorem 2.1 You will copy the statements of the Exercises and Theorems from the textbook here.

Answer You will enter your solutions and proofs here.

Let $f(x) \in \mathbb{Z}[x]$. If $f(x) = a_n x^n + a_{n-1}x^{n-1} + \cdots + a_1 x + a_0$, then we say that the *degree* of $f(x)$ is n.

The rational numbers consist of elements of the form $\frac{p}{q}$, where $p \in \mathbb{Z}$ and $q \in \mathbb{N}$. In other words:

$$\mathbb{Q} = \{\frac{p}{q} : p \in \mathbb{Z}, q \in \mathbb{N}\}.$$

The rational numbers consist of elements of the form $\dfrac{p}{q}$, where $p \in \mathbb{Z}$ and $q \in \mathbb{N}$. In other words:

$$\mathbb{Q} = \left\{\frac{p}{q} : p \in \mathbb{Z}, q \in \mathbb{N}\right\}.$$

Let $A \subset \mathbb{N}$. $A \cup B$ $A \cap B$ $x \in A$

$$f(x) = \int_{-\infty}^{x} e^t dt \tag{1}$$
$$= e^x \tag{2}$$

$$g(x) = \frac{d}{dt}\left(e^{tx^2}\right)$$
$$= x^2 e^{tx^2}$$

$$f(x) = \begin{cases} x \sin\left(\frac{1}{x}\right) & \text{if } x \neq 0, \\ 0 & \text{if } x = 0. \end{cases}$$