Math 330: Introduction to Higher Math, Section 1, Spring 2009 — Quiz # 5, April 20

Name: ....

1] Recall that an integer $n \in \mathbb{Z}$ is called *even* if it is divisible by 2, and it is called *odd* if it is not even. Recall also that we already proved that n is odd if and only if there exists an even integer e such that $n = e + 1$.

Prove that for all integers m and n, mn is even if and only if at least one of m and n is even.

2] Let $(x_n)_{n\in\mathbb{N}}$ be a sequence of real numbers.

(i) Write down the exact definition of $\lim_{n\to\infty} x_n = -\frac{2}{3}$.

(ii) (Bonus Question) How would you define $\lim_{n\to\infty} x_n = +\infty$?