1. (a) Explain why if $f(x)$ is continuous, then $|f(x)|$ is also continuous.

(b) Is the converse true? If so, prove. If not, give a counterexample.

2. Let $P(x)$ and $Q(x)$ be polynomials. Find

$$\lim_{x \to \infty} \frac{P(x)}{Q(x)}$$

*Hint:* You will need to break the result into several cases. Also, be sure to prove your answer (you may have seen this result in precalculus–do not just quote it).