

Name: _____

(20 points total)

1. (20 points) Determine whether each of the following sequences $\{a_n\}$ converges or diverges. Give the limit of each convergent sequence.

(a) $a_n = 2 + \frac{3}{n^2}$

(b) $a_n = (-1)^n \frac{n^2 - 5n}{6 + 5n + n^3 + 5n}$

(c) $a_n = \frac{\cos^2 n}{n}$

$$(d) a_n = \frac{\ln n}{\sqrt[3]{n}}$$

$$(e) a_n = \frac{e^n}{n^2}$$

$$(f) a_n = .2(-1)^n$$