

Worksheet 11.1

Full Name: _____ Score: _____

1. Determine if the sequence converges or diverges. If it converges, determine its limit.

(a) $a_n = \frac{5n^2 + 2n + 20}{3n^5 - 3n^2 - 5}$

(b) $a_n = \frac{9n^4 - 3n}{-27n^4 + 100n^2 + 1000}$

(c) $a_n = \frac{2n^3 + 1}{1500n^2 + 100n + 3000}$

(d) $a_n = 2^n$

(e) $a_n = \left(\frac{1}{3}\right)^n$

(f) $a_n = 4^{-n}$

(g) $a_n = 2^{\frac{n}{n+1}}$

(h) $a_n = \left(\frac{n}{3n+1}\right)^n$

(i) $a_n = 3^{\frac{n}{n^2+1}}$

(j) $\left\{2, -\frac{4}{3}, \frac{8}{9}, -\frac{18}{27}, \frac{32}{81}, \dots\right\}$

(k) $\{-4, 12, -36, 108, -324, \dots\}$