1.(1 pt) Find the limit of the sequence
$a_n = \frac{4n-8}{7n+9}$

2.(1 pt) Find the limit of the sequence:
$a_n = \frac{7n^2+7n+7}{5n^2+2n+7}$

3.(1 pt) Find the limit of the sequence $a_n = \frac{(\cos n)}{6^n}$.

4.(1 pt) Find the limit of the sequence whose terms are given by
$a_n = (n^2)(1-\cos(\frac{3.3}{n}))$.

5.(1 pt) Determine whether the sequence is divergent or convergent. If it is convergent, evaluate its limit. If it diverges to infinity, state your answer as "INF" (without the quotation marks). If it diverges to negative infinity, state your answer as "MINF". If it diverges without being infinity or negative infinity, state your answer as "DIV".
$$\lim_{n\to\infty} -7n + \frac{4}{8^n}$$

6.(1 pt) Determine whether the sequence is divergent or convergent. If it is convergent, evaluate its limit. If it diverges to infinity, state your answer as "INF" (without the quotation marks). If it diverges to negative infinity, state your answer as "MINF". If it diverges without being infinity or negative infinity, state your answer as "DIV".
$$\lim_{n\to\infty} \frac{33}{10^n} + 23\arctan(n^2)$$

7.(1 pt) Determine whether the sequence is divergent or convergent. If it is convergent, evaluate its limit. If it diverges to infinity, state your answer as "INF" (without the quotation marks). If it diverges to negative infinity, state your answer as "MINF". If it diverges without being infinity or negative infinity, state your answer as "DIV".
$$\lim_{n\to\infty} \frac{4(3^n)+11}{3(2^n)}$$

8.(1 pt) Determine whether the sequence is divergent or convergent. If it is convergent, evaluate its limit. If it diverges to infinity, state your answer as "INF" (without the quotation marks). If it diverges to negative infinity, state your answer as "MINF". If it diverges without being infinity or negative infinity, state your answer as "DIV".
$$\lim_{n\to\infty} \frac{-6n^6+\sin^2(4n)}{n^6+14}$$

9.(1 pt) Determine whether the sequence is divergent or convergent. If it is convergent, evaluate its limit. If it diverges to infinity, state your answer as "INF" (without the quotation marks). If it diverges to negative infinity, state your answer as "MINF". If it diverges without being infinity or negative infinity, state your answer as "DIV".
$$\lim_{n\to\infty} \frac{34+16\arctan(n!)}{14^n}$$

10.(1 pt) Determine whether the sequence is divergent or convergent. If it is convergent, evaluate its limit. If it diverges to infinity, state your answer as "INF" (without the quotation marks). If it diverges to negative infinity, state your answer as "MINF". If it diverges without being infinity or negative infinity, state your answer as "DIV".
$$\lim_{n\to\infty} \frac{n^4}{e^{-2n}}$$

11.(1 pt) Determine whether the sequence is divergent or convergent. If it is convergent, evaluate its limit. If it diverges to infinity, state your answer as "INF" (without the quotation marks). If it diverges to negative infinity, state your answer as "MINF". If it diverges without being infinity or negative infinity, state your answer as "DIV".
$$\lim_{n\to\infty} \frac{n^n}{e^{6n}}$$

12.(1 pt) Determine whether the sequence is divergent or convergent. If it is convergent, evaluate its limit. If it diverges to infinity, state your answer as "INF" (without the quotation marks). If it diverges to negative infinity, state your answer as "MINF". If it diverges without being infinity or negative infinity, state your answer as "DIV".
$$\lim_{n\to\infty} \frac{-2(n!)}{(-6)^n}$$

13.(1 pt) Determine whether the sequence is divergent or convergent. If it is convergent, evaluate its limit. If it diverges to infinity, state your answer as "INF" (without the quotation marks). If it diverges to negative infinity, state your answer as "MINF". If it diverges without being infinity or negative infinity, state your answer as "DIV".
$$\lim_{n\to\infty} \frac{8(n!)}{(n)^n}$$

14.(1 pt) Find the limit of the sequence whose terms are given by
$a_n = (e^{2n}+6n)^{1/n}$.

15.(1 pt) Find the limit of the sequence whose terms are given by
$a_n = \left(\frac{1}{e^{4n}+n^2}\right)^{1/n}$.

16.(1 pt) If a sequence $c_1, c_2, c_3, ...$ has limit K then the sequence $e^{c_1}, e^{c_2}, e^{c_3}, ...$ has limit e^K. Use this fact together with l'Hopital's rule to compute the limit of the sequence given by $b_n = (1+\frac{2.8}{n})^n$.

17.(1 pt) If a sequence $c_1, c_2, c_3, \ldots$ has limit K then the sequence $e^{c_1}, e^{c_2}, e^{c_3}, \ldots$ has limit e^K. Use this fact together with l'Hopital's rule to compute the limit of the sequence given by $b_n = (n)^{\frac{3.1}{n}}$.

18.(1 pt) Match each sequence below to statement that BEST fits it.

STATEMENTS

Z. The sequence converges to zero;

I. The sequence diverges to infinity;

F. The sequence has a finite non-zero limit;

D. The sequence diverges.

SEQUENCES

__ 1. $n\sin\left(\frac{1}{n}\right)$

__ 2. $\arctan(n+1)$

__ 3. $\frac{(\ln(n))}{n}$

__ 4. $\frac{n^3-5n}{3n-n^5}$

__ 5. $\frac{n^{100}}{(1.01)^n}$

__ 6. $\sin(n)$

__ 7. $\ln(\ln(\ln(n)))$

__ 8. $\frac{n!}{n^{1000}}$

19.(1 pt) Match each sequence below to statement that BEST fits it.

STATEMENTS

Z. The sequence converges to zero; I. The sequence diverges to positive infinity;

F. The sequence has a finite non-zero limit; D. The sequence diverges, but not to infinity.

SEQUENCES

__ 1. $\sqrt{n^2+4n}-\sqrt{n^2}$

__ 2. $(-1)^{-n}\frac{2n}{\ln(n)}$

__ 3. $\left(\frac{e}{10}\right)^n$

__ 4. $\frac{100n^2+1}{3n!}$

__ 5. $\cos^2(n)+\sin^2(n)$

__ 6. $\frac{5^n}{n!}$

__ 7. $\left(5n^{2n}\right)^{1/n}$

__ 8. $\frac{(-5)^n}{n!}$