WeBWorK assignment number Exercises_6

This is an exercise assignment, treated differently from ordinary WeBWork assignments. The WeBWork due date is the same as the opening date, so that answers are available to students immediately. Students are to print the assignment and work the problems on paper. That work will be collected periodically and graded for effort. Exercises are worth 20 points (4% of the overall grade).

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1. **(1 pt) Library/Rochester/setSequences4Arithmetic/ur_sq_4_1.pg**

Write down the first five terms of the sequence $\left\{ \frac{7n}{n+15} \right\}$

___, ___, ___, ___, ___,

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2. **(1 pt) Library/maCalcDB/setSequences5Geometric/ur_sq_5_2.pg**

Find the 5^{th} term of the geometric sequence

$-1, -2, -4, ...$

Answer: ____

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3. **(1 pt) Library/maCalcDB/setSequences5Geometric/ur_sq_5_1.pg**

Find the common ratio and write out the first four terms of the geometric sequence $\left\{ \frac{2^{n+1}}{4} \right\}$

Common ratio is ___

$a_1 =$___, $a_2 =$___, $a_3 =$___, $a_4 =$___

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4. **(1 pt) Library/maCalcDB/setSequences2Limits/ns8_1_25.pg**

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

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5. **(1 pt) Library/maCalcDB/setSequences2Limits/ur_sq_2_12.pg**

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".

$$\lim_{n\to\infty} -8n + \frac{4}{3^n}$$

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6. **(1 pt) Library/maCalcDB/setSequences2Limits/ur_sq_2_17.pg**

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".

$$\lim_{n\to\infty} \frac{n^2}{e^{-2n}}$$

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7. **(1 pt) Library/maCalcDB/setSequences2Limits/ur_sq_2_21.pg**

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. $\frac{n^{100}}{(1.01)^n}$
___2. $\frac{n!}{n^{1000}}$
___3. $\frac{n^3-5n}{3n-n^5}$
___4. $\arctan(n+1)$
___5. $n\sin\left(\frac{1}{n}\right)$
___6. $\sin(n)$
___7. $\frac{(\ln(n))}{n}$
___8. $\ln(\ln(\ln(n)))$

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8. **(1 pt) Library/maCalcDB/setSequences2Limits/ur_sq_2_22.pg**

Find the limit of the sequence whose terms are given by

$a_n = (e^{2n} + 6n)^{1/n}$.

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9. **(1 pt) Library/maCalcDB/setSequences2Limits/ur_sq_2_26.pg**

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".

$$\lim_{n\to\infty} \frac{n^n}{e^{8n}}$$

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10. **(1 pt) Library/ma123DB/set10/s11_1_25.pg**

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* . If it diverges to negative infinity, state your answer as *-inf* . If it

diverges without being infinity or negative infinity, state your answer as *div* .)

$$\lim_{n\to\infty} \frac{5+(-1)^n}{n^2}$$

Answer: _____