NEW BRUNSWICK CALCULUS 120 · UNIT E · 25 QUESTIONS

Indeterminate Forms and l'Hopital's Rule — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **LHopital rule can be used, possibly after rewriting, for a limit of the form $\frac{\infty}{\infty}$**

A yes, directly

B no

C only for polynomials

D never

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2 **LHopital rule can be used for a limit of the form 0 times infinity**

A no

B yes, after rewriting

C only for polynomials

D never

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3 **LHopital rule can be used for a limit of the form infinity minus infinity**

A no

B only for polynomials

C yes, after rewriting

D never

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4 **LHopital rule can be used for a limit of the form 1^∞**

- A no
- B only for polynomials
- C never
- D yes, after rewriting

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5 **LHopital rule can be used for a limit of the form 0^0**

- A yes , after rewriting
- B no
- C only for polynomials
- D never

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6 **The limit as x approaches 0 of sin(7x) / x is**

ANSWER _____

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7 **The limit as x approaches 0 of (e^{2x} - 1) / x is**

ANSWER _____

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8 **The limit as x approaches 0 of (e^{3x} - 1) / x is**

ANSWER _____

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9 **The limit as x approaches 0 of (e^{4x} - 1) / x is**

ANSWER _____

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10 **Using Lhopital rule, the limit as x approaches 0 of $(e^x - 1)/x$ is**

ANSWER _____

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11 **Applying Lhopital rule to $(e^(3x) - 1)/x$ as x approaches 0 gives**

ANSWER _____

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12 **The indeterminate form of the limit of $(e^x - 1)/x$ as x approaches 0 is**

A. 0 ÷ 0

B. ∞ ÷ ∞

C. 1 ÷ 0

D. 0 × infinity

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13 **The limit as x approaches 3 of (x^2 - 9) / (x - 3) is**

ANSWER _____

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14 **The limit as x approaches 4 of (x^2 - 16) / (x - 4) is**

ANSWER _____

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15 **The limit as x approaches 5 of (x^2 - 25) / (x - 5) is**

ANSWER _____

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16 **Applying Lhopital rule twice to $\frac{(x^2)}{(e^x)}$ as x approaches infinity gives**

ANSWER _____

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17 **The limit of $(x^2 - 1)/(x - 1)$ as x approaches 1, found by factoring, is**

ANSWER _____

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18 **The form of the limit $(x^2 - 4)/(x - 2)$ as x approaches 2 before simplifying is**

A $0 \div 0$

B $\infty \div \infty$

C $1 \div 0$

D infinity - infinity

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19 **The limit as x approaches infinity of (2x + 1) / (2x + 1) is**

ANSWER _____

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20 **The limit as x approaches infinity of (3x + 2) / (3x + 1) is**

ANSWER _____

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21 **The limit as x approaches infinity of (4x + 1) / (4x + 1) is**

ANSWER _____

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22 **Dividing top and bottom by x , the limit of (3x + 1)/(x + 2) as x grows without bound is**

ANSWER _____

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23 **The limit of ln $\frac{x}{x}$ as x grows without bound is**

ANSWER _____

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24 **Lhopital rule can be used when a limit has the form**

- A 0 ÷ 0 or ∞ ÷ ∞
- B 1 ÷ 0, a fraction with zero underneath that gives a finite answer
- C 0 × 1
- D infinity + infinity

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25 **LHopital rule can be used , possibly after rewriting , for a limit of the form $\frac{0}{0}$**

- A no
- B yes , directly
- C only for polynomials
- D never

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ANSWER KEY

1.	A	**10.**	1	**19.**	1
2.	B	**11.**	3	**20.**	1
3.	C	**12.**	A	**21.**	1
4.	D	**13.**	6	**22.**	3
5.	A	**14.**	8	**23.**	0
6.	7	**15.**	10	**24.**	A
7.	2	**16.**	0	**25.**	B
8.	3	**17.**	2		
9.	4	**18.**	A		

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