LIMITS, SEQUENCES, AND SERIES - PRACTICE TEST | MISSOURI PRECALCULUS · UNIT 4 · 25 QUESTIONS

Limits, Sequences, and Series, 25-question test — 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 **The limit $\lim_{x \to 4} (2x + 1)$ is**

Question 1

The limit $\lim_{x \to 4} (2x + 1)$ is

A) 7 B) 8

C) 9 D) 10

- **A** 7
- **B** 8
- **C** 9
- **D** 10

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2 The limit $\lim_{x \to 2} x^2 - 4/x - 2$ is

Question 2

Find $\lim_{x \to 2} \frac{x^2 - 4}{x - 2}$

A) 2

B) 3

C) 4

D) 0

- **A** 2
- **B** 3
- **C** 4
- **D** 0

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3 The limit $\lim_{x \to 3} x^2 - 9/x - 3$ is

Question 3

Find $\lim_{x \to 3} \frac{x^2 - 9}{x - 3}$

A) 3

B) 6

C) 9

D) 0

- **A** 3
- **B** 6
- **C** 9
- **D** 0

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4

The limit $\lim_{x \to 2} x^3 - 8/x - 2$ is

Question 4

Find $\lim_{x \to 2} \frac{x^3 - 8}{x - 2}$

A) 4

B) 8

C) 12

D) 16

A 4

B 8

C 12

D 16

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5 The limit $\lim_{x \to \infty} 1/x$ is

Question 5

Find $\lim_{x \to \infty} \frac{1}{x}$

A) 1

B) 0

C) ∞

D) −1

A 1

B 0

C ∞

D -1

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6

The limit $\lim_{x \to \infty} 3x^2/x^2 + 1$ is

Question 6

Find $\lim_{x \to \infty} \frac{3x^2}{x^2+1}$

A) 0

B) 1

C) ∞

D) 3

A 0

B 1

C ∞

D 3

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7 The limit $\lim_{x \to 0} \sin x/x$ is

Question 7

Find $\lim_{x \to 0} \frac{\sin x}{x}$

A) 0

B) 1

C) −1

D) ∞

A 0

B 1

C -1

D ∞

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8 **The limit $\lim_{x \to 4} \sqrt{x} - 2/x - 4$ is**

Question 8

Find $\lim_{x \to 4} \frac{\sqrt{x} - 2}{x - 4}$

A) $\frac{1}{4}$

B) $\frac{1}{2}$

C) 1

D) 4

A 1/4

B 1/2

C 1

D 4

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9 The function f(x) = x² - 1/x - 1 has a removable discontinuity at

Question 9

The function $f(x) = \frac{x^2-1}{x-1}$ has a removable discontinuity at

A) $x = 0$

B) $x = 1$

C) $x = -1$

D) no value

A x = 0

B x = 1

C x = -1

D no value

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10 For $a_n = 2n + 1$, the sixth term is

Question 10

For $a_n = 2n + 1$, the sixth term is

A) 11

B) 12

C) 13

D) 15

A 11

B 12

C 13

D 15

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11 For $a_n = n^2 - 1$, the fifth term is

Question 11

For $a_n = n^2 - 1$, the fifth term is

A) 24

B) 25

C) 23

D) 26

A 24

B 25

C 23

D 26

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12

In an arithmetic sequence with $a_1 = 3$ and common difference 4, the tenth term is

Question 12

In an arithmetic sequence with $a_1 = 3$ and common difference 4, the tenth term is

A) 35

B) 39

C) 43

D) 40

A 35

B 39

C 43

D 40

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13

The sum of the first 10 terms of an arithmetic sequence with $a_1 = 2$ and common difference 3 is

Question 13

The sum of the first 10 terms of an arithmetic sequence with $a_1 = 2$ and common difference 3 is

A) 135

B) 155

C) 165

D) 145

A 135

B 155

C 165

D 145

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14

In a geometric sequence with $a_1 = 2$ and common ratio 3, the fifth term is

Question 14

In a geometric sequence with $a_1 = 2$ and common ratio 3, the fifth term is

A) 54

B) 81

C) 162

D) 243

A 54

B 81

C 162

D 243

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15 The sum of the first 4 terms of 3, 6, 12, 24 is

Question 15

The sum of the first 4 terms of 3, 6, 12, 24 is

A) 45

B) 42

C) 48

D) 39

A 45

B 42

C 48

D 39

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16 The sum of the infinite geometric series with $a_1 = 12$ and $r = 1/3$ is

Question 16

The sum of the infinite geometric series with $a_1 = 12$ and $r = \frac{1}{3}$ is

A) 16

B) 18

C) 24

D) 36

A 16

B 18

C 24

D 36

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17 The sum of the infinite geometric series with $a_1 = 8$ and $r = 1/2$ is

Question 17

The sum of the infinite geometric series with $a_1 = 8$ and $r = \frac{1}{2}$ is

A) 12

B) 16

C) 20

D) 24

A 12

B 16

C 20

D 24

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18 The sum $\sum_{k=1}^{5} k^2$ is

Question 18

The sum $\sum_{k=1}^{5} k^2$ is

A) 30

B) 55

C) 50

D) 25

A 30

B 55

C 50

D 25

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19 The sum $\sum_{k=1}^{4} 2k$ is

Question 19

The sum $\sum_{k=1}^{4} 2k$ is

A) 16

B) 18

C) 20

D) 24

A 16

B 18

C 20

D 24

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20 The limit of the sequence $a_n = 2n/n + 1$ as $n \to \infty$ is

Question 20

The limit of the sequence $a_n = \frac{2n}{n+1}$ as $n \to \infty$ is

A) 0

B) 1

C) 2

D) ∞

A 0

B 1

C 2

D ∞

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21 The sequence 5, 9, 13, 17 has common difference

Question 21

The sequence 5, 9, 13, 17 has common difference

A) 2

B) 3

C) 5

D) 4

A 2

B 3

C 5

D 4

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22 The sequence 4, 12, 36, 108 has common ratio

Question 22

The sequence 4, 12, 36, 108 has common ratio

A) 2 B) 3

C) 4 D) 8

- A 2
- B 3
- C 4
- D 8

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23 The sum of the first 6 odd positive integers is ____.

Question 23

The sum of the first 6 odd positive integers is ____.

ANSWER _____

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24 For $a_n = 3n - 2$, the eighth term is ____.

Question 24

For $a_n = 3n - 2$, the eighth term is ____.

ANSWER

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25 For $a_1 = 2$ and $a_{n+1} = 2a_n + 1$, the fourth term is ____.

Question 25

For $a_1 = 2$ and $a_{n+1} = 2a_n + 1$, the fourth term is ____.

ANSWER

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ANSWER KEY

1.	C	**10.**	C	**19.**	C
2.	C	**11.**	A	**20.**	C
3.	B	**12.**	B	**21.**	D
4.	C	**13.**	B	**22.**	B
5.	B	**14.**	C	**23.**	36
6.	D	**15.**	A	**24.**	22
7.	B	**16.**	B	**25.**	23
8.	A	**17.**	B		
9.	B	**18.**	B		

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