MASSACHUSETTS PRECALCULUS · UNIT 4 · 25 QUESTIONS

Limits, Sequences, and Series — 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

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

Understand It with Pulse | Flag a mistake

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

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

Understand It with Pulse | Flag a mistake

3 **Find** $\lim_{x \to 3} x^2 - 9/x - 3.$

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

Understand It with Pulse | Flag a mistake

4 **Find** $\lim_{x \to 2} x^3 - 8/x - 2.$

- A 4
- B 8
- C 12
- D 16

Understand It with Pulse | Flag a mistake

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

A 1

B 0

C ∞

D -1

Understand It with Pulse | Flag a mistake

6 Find $\lim_{x \to \infty} 3x^2/x^2 + 1$.

A 0

B 1

C ∞

D 3

Understand It with Pulse | Flag a mistake

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

A 0

B 1

C -1

D ∞

Understand It with Pulse | Flag a mistake

8 Find $\lim_{x \to 4} \sqrt{x} - 2/x - 4$.

A $\frac{1}{4}$

B $\frac{1}{2}$

C 1

D 4

Understand It with Pulse | Flag a mistake

9 **The function $f(x) = x^2 - 1/x - 1$ has a removable discontinuity at**

- **A** x = 0
- **B** x = 1
- **C** x = -1
- **D** no value

Understand It with Pulse | Flag a mistake

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

- **A** 11
- **B** 12
- **C** 13
- **D** 15

Understand It with Pulse | Flag a mistake

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

- A 24
- B 25
- C 23
- D 26

Understand It with Pulse | Flag a mistake

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

Understand It with Pulse | Flag a mistake

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

Understand It with Pulse | Flag a mistake

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

Understand It with Pulse | Flag a mistake

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

- A 45
- B 42
- C 48
- D 39

Understand It with Pulse | Flag a mistake

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

Understand It with Pulse | Flag a mistake

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

Understand It with Pulse | Flag a mistake

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

- A 30
- B 55
- C 50
- D 25

Understand It with Pulse | Flag a mistake

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

- A 16
- B 18
- C 20
- D 24

Understand It with Pulse | Flag a mistake

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

- A 0
- B 1
- C 2
- D ∞

Understand It with Pulse | Flag a mistake

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

- A 2
- B 3
- C 5
- D 4

Understand It with Pulse | Flag a mistake

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

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

Understand It with Pulse | Flag a mistake

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

ANSWER _____

Understand It with Pulse | Flag a mistake

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

ANSWER _____

Understand It with Pulse | Flag a mistake

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

ANSWER _____

Understand It with Pulse | Flag a mistake

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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