NEW HAMPSHIRE 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 $\lim_{x \to 2} \frac{x^2 - 4}{x - 2}$.

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

Understand It with Pulse | Flag a mistake

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

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

Understand It with Pulse | Flag a mistake

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

- **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 $\lim_{x \to \infty} \frac{3x^2}{x^2 + 1}$.

- **A** 0
- **B** 1
- **C** ∞
- **D** 3

Understand It with Pulse | Flag a mistake

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

A 0

B 1

C -1

D ∞

Understand It with Pulse

Flag a mistake

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



A $\frac{1}{4}$

B $\frac{1}{2}$

C 1

D 4

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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

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

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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**

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 $a_n = \frac{2n}{n+1}$ 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
2. C
3. B
4. C
5. B
6. D
7. B
8. A
9. B
10. C
11. A
12. B
13. B
14. C
15. A
16. B
17. B
18. B
19. C
20. C
21. D
22. B
23. 36
24. 22
25. 23

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