CALIFORNIA PRECALCULUS · FINAL EXAM · 50 QUESTIONS

Final Exam — 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 **If f(x) = x + 2 and g(x) = 3x, then (f ° g)(x) is**

- A 3x + 6
- B 3x + 2
- C x + 6
- D 3x - 2

Understand It with Pulse | Flag a mistake

2 **The value of cos π/3 is**

- A 1
- B $\frac{1}{2}$
- C $\sqrt{3}/2$
- D 0

Understand It with Pulse | Flag a mistake

3 **The dot product $\langle 2, 3 \rangle \cdot \langle 4, -1 \rangle$ is**

A 14

B 11

C 5

D 2

Understand It with Pulse | Flag a mistake

4 $\lim_{x \to \infty} 2x + 1/x - 3$ **is**

A 2

B 0

C 1

D ∞

Understand It with Pulse | Flag a mistake

5 If $f(x) = 2x - 1$ and $g(x) = x^2$, then $(g \circ f)(x)$ is

- A $4x^2 - 1$
- B $2x^2 - 1$
- C $2x - 1 + x^2$
- D $(2x - 1)^2$

Understand It with Pulse | Flag a mistake

6 The value of $\cos 120°$ is

- A $\frac{1}{2}$
- B -1/2
- C 0
- D $\sqrt{3}/2$

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7 For the parametric equations x = 3t and y = t + 1, the point when t = 2 is

- A (6, 2)
- B (2, 3)
- C (6, 3)
- D (3, 6)

Understand It with Pulse | Flag a mistake

8 $\lim_{x \to \infty} \frac{1}{x}$ is

- A -1
- B 0
- C 1
- D ∞

Understand It with Pulse | Flag a mistake

9 The range of $f(x) = -2(x - 1)^2 + 5$ is

- **A** $y \geq -2$
- **B** $y > 5$
- **C** $y \geq 5$
- **D** $y \leq 5$

Understand It with Pulse | Flag a mistake

10 If $\cos \theta = \frac{3}{5}$, then $\sec \theta$ is

- **A** $\frac{5}{4}$
- **B** $\frac{5}{3}$
- **C** $\frac{4}{5}$
- **D** $\frac{3}{5}$

Understand It with Pulse | Flag a mistake

11 The magnitude of the vector langle 3, 4 rangle is

- A 7
- B 5
- C 12
- D 25

Understand It with Pulse | Flag a mistake

12 For $a_1 = 2$ and $a_{n+1} = 2a_n + 1$, the term a_3 is

- A 7
- B 5
- C 11
- D 9

Understand It with Pulse | Flag a mistake

13 **The point (3, -2) lies on the graph of y = f(x). The image of this point on the graph of y = f(x - 2) is**

A (5, 0)

B (5, -2)

C (1, -2)

D (3, -4)

Understand It with Pulse | Flag a mistake

14 **The graph of y = sin (x - π/2) is the graph of y = sin x shifted**

A down by π/2

B up by π/2

C right by π/2

D left by π/2

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15 For $y^2/9 - x^2/4 = 1$, the vertices are

- A (0, ± 3)
- B (± 2, 0)
- C (0, ± 2)
- D (± 3, 0)

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16 The common difference of 10, 7, 4, … is

- A -7
- B 7
- C -3
- D 3

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17 **The function $f(x) = x^5 - 3x$ is**

- A neither even nor odd
- B even
- C odd
- D both even and odd

Understand It with Pulse | Flag a mistake

18 **The solutions of $\tan x = 1$ on $[0, 2\pi)$ are**

- A $\pi/4$ only
- B $\pi/4$ and $3\pi/4$
- C $3\pi/4$ and $7\pi/4$
- D $\pi/4$ and $5\pi/4$

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19 The dot product $\langle 1, 5 \rangle \cdot \langle 2, 2 \rangle$ is

- A 12
- B 7
- C 20
- D 10

Understand It with Pulse | Flag a mistake

20 $\lim_{x \to 2} x^2 - 4/x - 2$ is

- A 8
- B 2
- C 4
- D 0

Understand It with Pulse | Flag a mistake

21 The average rate of change of $f(x) = x^3$ on the interval $1 \le x \le 2$ is

- A 8
- B 7
- C 5
- D 3

Understand It with Pulse | Flag a mistake

22 In a triangle with sides $a = 3$, $b = 4$, and included angle $C = 90°$, the side c is

- A 6
- B 7
- C 5
- D 25

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23 For $x^2/36 + y^2/16 = 1$, the length of the major axis is

- A 8
- B 6
- C 36
- D 12

Understand It with Pulse | Flag a mistake

24 For the arithmetic sequence with $a_1 = 5$ and $d = 3$, the term a_6 is

- A 23
- B 18
- C 20
- D 15

Understand It with Pulse | Flag a mistake

25 **If f(x) = x² - 3x, then f(-2) is**

ANSWER _____

Understand It with Pulse | Flag a mistake

26 **The principal value of arctan 1 is**

A π/4

B π/3

C π/6

D π/2

Understand It with Pulse | Flag a mistake

27 **The focus of $y^2 = 12x$ is**

A (12, 0)

B (0, 3)

C (-3, 0)

D (3, 0)

Understand It with Pulse | Flag a mistake

28 $\lim_{x \to 3} x^2$ **is**

ANSWER _____

Understand It with Pulse | Flag a mistake

29 **Compared with y = f(x), the graph of y = f(3x) is**

A shifted right by 3

B stretched vertically by 3

C stretched horizontally by 3

D compressed horizontally by $\frac{1}{3}$

Understand It with Pulse | Flag a mistake

30 **The value of sin π/2 is**

ANSWER _____

Understand It with Pulse | Flag a mistake

31 The magnitude of the vector langle 0, 5 rangle is

- A 25
- B 5
- C 0
- D 10

Understand It with Pulse | Flag a mistake

32 $\lim_{x \to -1} x^2 - 1/x + 1$ is

- A -2
- B 0
- C 1
- D 2

Understand It with Pulse | Flag a mistake

33 If f(x) = 4x and g(x) = x - 3, then (f ° g)(x) is

- A x - 12
- B 4x + 12
- C 4x - 12
- D 4x - 3

Understand It with Pulse | Flag a mistake

34 The value of sin π/3 is

- A $\sqrt{3}/2$
- B $\frac{1}{2}$
- C $\sqrt{2}/2$
- D 1

Understand It with Pulse | Flag a mistake

35 The magnitude of the vector langle 5, 12 rangle is

ANSWER _____

Understand It with Pulse | Flag a mistake

36 The sum of the first 5 terms of 1, 3, 5, 7, 9 is

ANSWER _____

Understand It with Pulse | Flag a mistake

37 The range of $f(x) = (x + 3)^2 - 2$ is

A $y > -2$

B $y \geq 3$

C $y \geq -2$

D $y \leq -2$

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38 **The value of cos 180° is**

- A -1
- B 1
- C $\frac{1}{2}$
- D 0

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39 **The magnitude of the vector langle 9, 12 rangle is**

- A 21
- B 3
- C 108
- D 15

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40 **The sum of the infinite geometric series 8 + 4 + 2 + cdots is**

- A 16
- B 8
- C 12
- D 24

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41 **The function f(x) = (x - 2)² is decreasing on**

- A x < 2
- B x > 2
- C all real numbers
- D x > 0

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42 The amplitude of $y = 5 \cos x$ is

- A 5
- B 1
- C 2
- D 2π

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43 The radius of $x^2 + y^2 = 25$ is

- A 25
- B 10
- C $\sqrt{5}$
- D 5

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44 **The sum of the infinite geometric series 1 + 1/2 + 1/4 + cdots is**

A 2

B 1

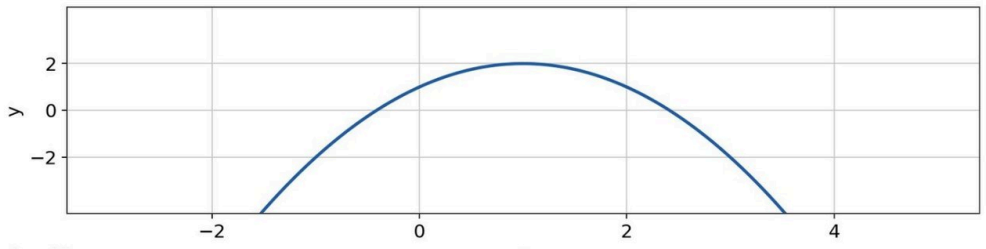
C $\frac{3}{2}$

D 4

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45 **The graph below shows $y = -(x - 1)^2 + 2$. The vertex of the graph is**

45 **The graph below shows $y = -(x - 1)^2 + 2$. The vertex of the graph is**



A (1, -2)
B (-1, 2)
C (1, 2)
D (-1, -2)

A (1, -2)

B (-1, 2)

C (1, 2)

D (-1, -2)

Understand It with Pulse

Flag a mistake

46 **In a triangle with A = 30°, a = 6, and B = 45°, the side b is**

- **A** 6
- **B** 12
- **C** $3\sqrt{2}$
- **D** $6\sqrt{2}$

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47 **The vertex of $y = (x + 1)^2 + 4$ is**

- **A** (1, -4)
- **B** (-1, 4)
- **C** (-1, -4)
- **D** (1, 4)

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48 The sum of the infinite geometric series 12 + 6 + 3 + cdots is

- A 24
- B 21
- C 18
- D 36

Understand It with Pulse | Flag a mistake

49 Given f(x) = x + 1 and g(x) = 2x - 3, the value of (f ° g)(2) is

- A 5
- B 2
- C 4
- D 1

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50 **The value of cos π is**

ANSWER

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ANSWER KEY

1.	B	**18.**	D	**35.**	13
2.	B	**19.**	A	**36.**	25
3.	C	**20.**	C	**37.**	C
4.	A	**21.**	B	**38.**	A
5.	D	**22.**	C	**39.**	D
6.	B	**23.**	D	**40.**	A
7.	C	**24.**	C	**41.**	A
8.	B	**25.**	10	**42.**	A
9.	D	**26.**	A	**43.**	D
10.	B	**27.**	D	**44.**	A
11.	B	**28.**	9	**45.**	C
12.	C	**29.**	D	**46.**	D
13.	B	**30.**	1	**47.**	B
14.	C	**31.**	B	**48.**	A
15.	A	**32.**	A	**49.**	B
16.	C	**33.**	C	**50.**	-1
17.	C	**34.**	A		

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