Pre-Calculus Core Concepts

Mathematics · Practice Test · 10 Questions

1. What is the period of the function f(x) = sin(3x)?

A) 2?/3
B) 3?
C) 2?
D) ?/3

2. What is the value of log_2(32)?

A) 8
B) 4
C) 6
D) 5

3. Which of the following functions represents an even function?

A) f(x) = x^3
B) f(x) = sin(x)
C) f(x) = x^2 + 1
D) f(x) = 2x + 5

4. What is the horizontal asymptote of the function f(x) = (3x^2 + 1) / (x^2 - 4)?

A) y = 3
B) y = 0
C) y = 1
D) y = -1/4

5. If a sequence is defined by a_n = 2n - 1, what is the 10th term of the sequence?

A) 18
B) 19
C) 20
D) 21

6. What is the range of the function f(x) = |x| + 3?

A) (-infinity, infinity)
B) (3, infinity)
C) [3, infinity)
D) [0, infinity)

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7. What is the exact value of cos(120 degrees)?

A) 1/2
B) -1/2
C) sqrt(3)/2
D) -sqrt(3)/2

8. Which expression is equivalent to sin^2(x) + cos^2(x)?

A) 1
B) 0
C) 2sin(x)cos(x)
D) tan^2(x)

9. What is the vertex of the parabola f(x) = (x - 2)^2 + 5?

A) (-2, 5)
B) (2, -5)
C) (-2, -5)
D) (2, 5)

10. In a geometric sequence where the first term is 3 and the common ratio is 2, what is the 4th term?

A) 12
B) 18
C) 24
D) 48

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