

Midterm Practice

1. Compute the following limit,

$$\lim_{x \rightarrow \infty} \frac{e^{2x}}{e^x + 1}$$

- (a) $-\infty$ (c) ∞
(b) 0 (d) Does not exist.

2. Compute the following limit,

$$\lim_{x \rightarrow \infty} \sin\left(\frac{2\pi}{x}\right)$$

- (a) 1 (c) ∞
(b) 0 (d) Does not exist.

3. Compute the following limit,

$$\lim_{x \rightarrow 4} \ln\left(\tan\left(\frac{\pi}{x}\right)\right)$$

- (a) 1 (c) ∞
(b) 0 (d) Does not exist.

4. Compute the following limit,

$$\lim_{x \rightarrow 9} \frac{\sqrt{x} - 3}{9 - x}$$

- (a) $\frac{1}{6}$ (c) $-\frac{1}{6}$
(b) 0 (d) Does not exist.

5. Compute the following limit,

$$\lim_{x \rightarrow 2^+} \ln(x^4 - 16)$$

- (a) $-\infty$ (c) 1
(b) 0 (d) Does not exist.

6. Determine whether or not a function exists with the following conditions:

$$\lim_{x \rightarrow 5^+} f(x) = 1 \text{ and } \lim_{x \rightarrow 5^-} f(x) = 2 \text{ and } f(5) = 3$$

- (a) Exists. (b) Does not exist.

Answers

1. C
2. B
3. B
4. C
5. A
6. A