BRITISH COLUMBIA CALCULUS 12 (MCALC12) · UNIT A · 10 QUESTIONS

Functions, Graphs and Limits — 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 $\lim_{x \to 2} \frac{x^3 - 8}{x - 2}$ is

ANSWER

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2 The graph shows a function with a jump at x = 2. The right-hand limit at x = 2 is

A. 3

B. 0

C. 2

D. does not exist

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3 $\lim_{x \to \infty} \frac{4x^2 + 5}{8x^2 - 1}$ is

A 4

B $\frac{1}{2}$

C 8

D 0

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4 $\lim_{x \to \infty} \frac{x + 5}{3x^2}$ is

A $\frac{1}{3}$

B ∞

C 0

D 5

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5 **The discontinuity of $f(x) = \frac{1}{(x + 4)^2}$ at $x = -4$ is**

- A removable
- B jump
- C infinite
- D none

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6 **The horizontal asymptote of $f(x) = \frac{2x^2 + 1}{x^2 - 4}$ is**

- A $y = 1$
- B $y = 2$
- C $y = 4$
- D $y = 0$

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7 The function $f(x) = \dfrac{x - 1}{(x - 1)(x + 3)}$ has a vertical asymptote at

- **A** $x = 1$
- **B** $x = -3$
- **C** $x = 3$
- **D** $x = -1$

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8 $\lim\limits_{x \to 4} \dfrac{\sqrt{x + 5} - 3}{x - 4}$ is

- **A** $\frac{1}{6}$
- **B** $\frac{1}{3}$
- **C** 6
- **D** $\frac{1}{5}$

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9 $\lim_{x \to -\infty} \frac{x}{\sqrt{x^2 + 1}}$ is

A 1

B 0

C -1

D ∞

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10 The piecewise function f(x) = 2x + b for x < 1 and f(x) = 5 for x ≥ 1 is continuous at x = 1 when b equals

A 2

B 7

C 3

D 5

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ANSWER KEY

1. 12
2. B
3. B
4. C
5. C
6. B
7. B
8. A
9. C
10. C

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