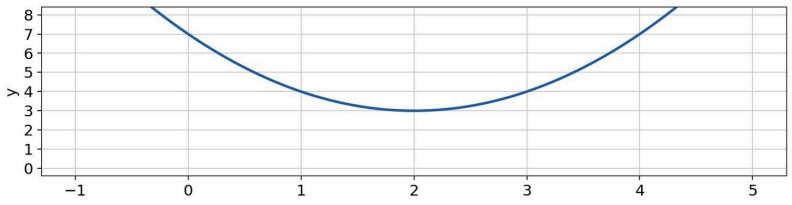
ALBERTA MATH 31 · UNIT 1 · 25 QUESTIONS

Limits and Continuity — 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 graph of a function f is shown. The value of $\lim_{x \to 2} f(x)$ is**



A 3

B 5

C 2

D does not exist

Understand It with Pulse

Flag a mistake

2 The value of $\lim_{x \to 4} x^2 - 16/x - 4$ is

- **A** 4
- **B** does not exist
- **C** 0
- **D** 8

Understand It with Pulse | Flag a mistake

3 The average rate of change of $f(x) = x^2 - 3x$ on the interval $1 \leq x \leq 4$ is

- **A** 2
- **B** 3
- **C** 5
- **D** 6

Understand It with Pulse | Flag a mistake

4 The value of $\lim_{h \to 0} (3 + h)^2 - 9/h$ is _____

ANSWER

Understand It with Pulse | Flag a mistake

5 The value of $\lim_{x \to 1} \sqrt{x + 3} - 2/x - 1$ is

A $\frac{1}{2}$

B $\frac{1}{4}$

C 4

D 0

Understand It with Pulse | Flag a mistake

6 **A function f is continuous at x = a if**

- **A** f(a) is defined
- **B** $\lim_{x \to a} f(x) = f(a)$
- **C** $\lim_{x \to a} f(x)$ exists
- **D** f(a) = 0

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7 **A function f is defined by f(x) = kx - 1 for x ≤ 2 and f(x) = 3x + k for x > 2. If f is continuous at x = 2, then the value of k is _____**

ANSWER _____

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8 **At x = -5, the function f(x) = 1/x + 5 has**

A a removable discontinuity

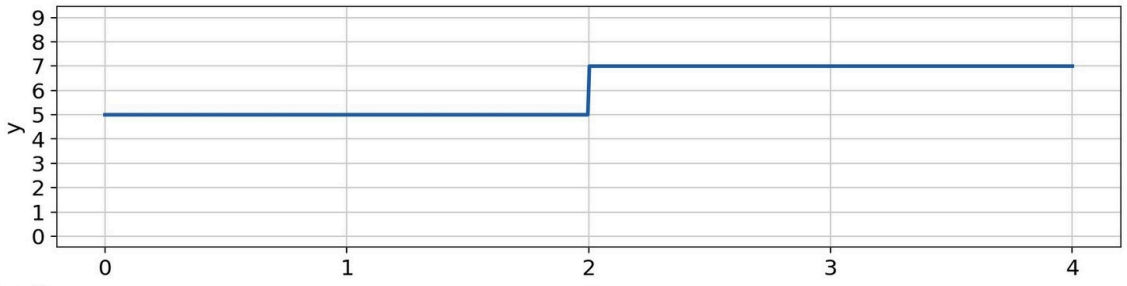
B a jump discontinuity

C no discontinuity; f is continuous there

D an infinite discontinuity

Understand It with Pulse | Flag a mistake

9 For the function f whose graph is shown, the value of $\lim_{x \to 2} f(x)$ is



A 5

B 7

C does not exist

D 6

Understand It with Pulse | Flag a mistake

10 If $-x^2 \le f(x) \le x^2$ for all x near 0, then $\lim_{x \to 0} f(x)$ equals

- A 0
- B 1
- C -1
- D does not exist

Understand It with Pulse | Flag a mistake

11 Let $f(x) = x^2 - 4/x - 2$ for $x \neq 2$, and let $f(2) = k$. If f is continuous at $x = 2$, then the value of k is

- A 2
- B 0
- C no such value exists
- D 4

Understand It with Pulse | Flag a mistake

12 **The average rate of change of a function f on the interval [a, a + h] is given by**

A f(a + h) + f(a)/h

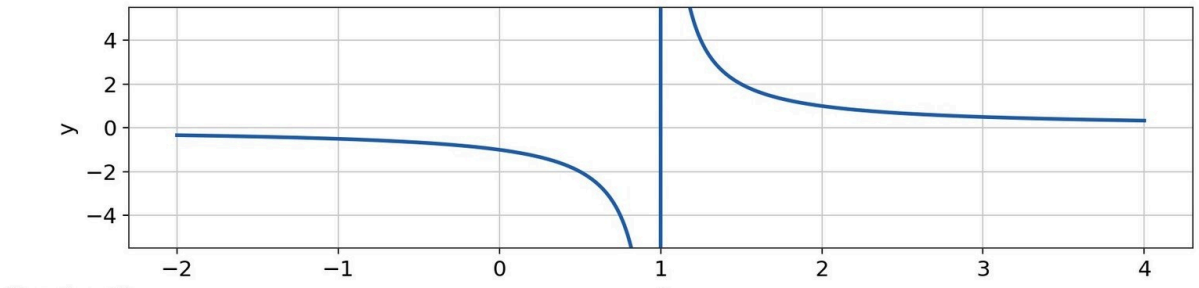
B f(a + h) - f(a)/h

C f(a + h) - f(a)

D f(a + h) - f(a)/a + h

Understand It with Pulse | Flag a mistake

13 **The graph of a function f is shown. At x = 1, the function f has a discontinuity that is**



A removable

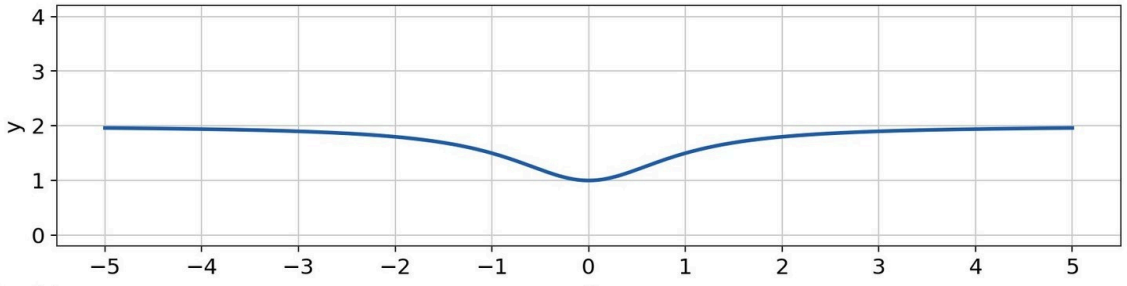
B a jump discontinuity

C an infinite discontinuity

D not a discontinuity; f is continuous there

Understand It with Pulse | Flag a mistake

14 **The graph of a function f is shown. The graph of f has a horizontal asymptote with equation**



A y = 0

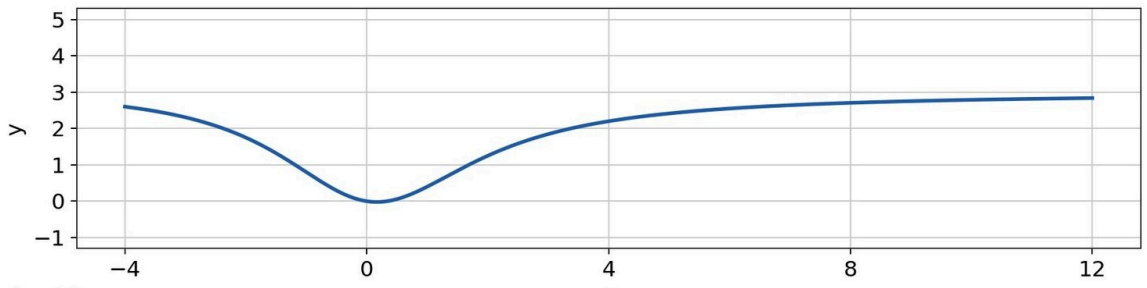
B y = 6

C y = 2

D there is no horizontal asymptote

Understand It with Pulse | Flag a mistake

15 **The graph of a function f is shown. The value of $\lim_{x \to \infty} f(x)$ is _____**



ANSWER _____

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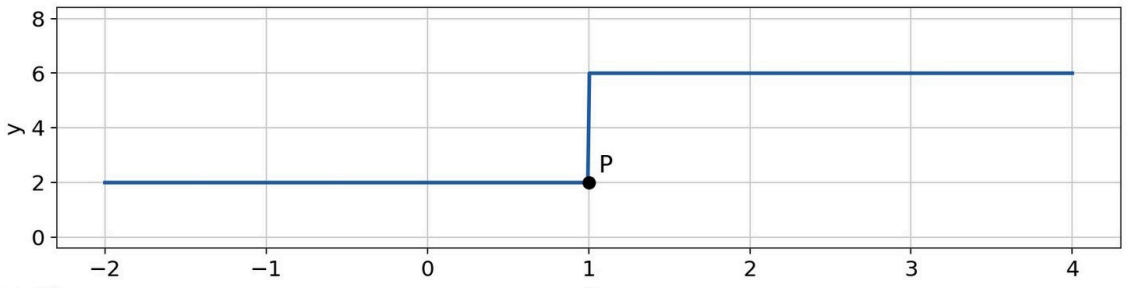
16 **The graph of a function f is shown, with a point plotted at P. Which statement is true?**



A $\lim_{x \to 1} f(x) = 2$

B $\lim_{x \to 1^-} f(x) = 6$

C f is continuous at x = 1

D $\lim_{x \to 1} f(x)$ does not exist

Understand It with Pulse | Flag a mistake

17 The value of $\lim_{x \to 2} 1/(x - 2)^2$ is

A 0

B $-\infty$

C ∞

D 4

Understand It with Pulse | Flag a mistake

18 The value of $\lim_{x \to 9} x - 9/\sqrt{x} - 3$ is

A 6

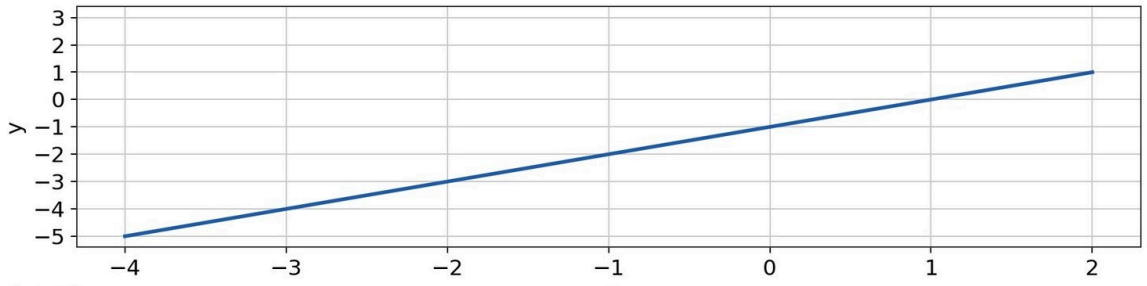
B 3

C 0

D $\frac{1}{6}$

Understand It with Pulse | Flag a mistake

19 The graph of a function f is shown. The value of $\lim_{x \to -1} f(x)$ is



A -2

B -1

C 0

D does not exist

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20 The value of $\lim_{x \to -2} x^3 + 8/x + 2$ is _____

ANSWER _____

Understand It with Pulse | Flag a mistake

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

ANSWER _____

Understand It with Pulse | Flag a mistake

22 The value of $\lim_{h \to 0} (2 + h)^3 - 8/h$ is _____

ANSWER _____

Understand It with Pulse | Flag a mistake

23 The value of $\lim_{x \to 7} \sqrt{x + 2} - 3/x - 7$ is

A. 6

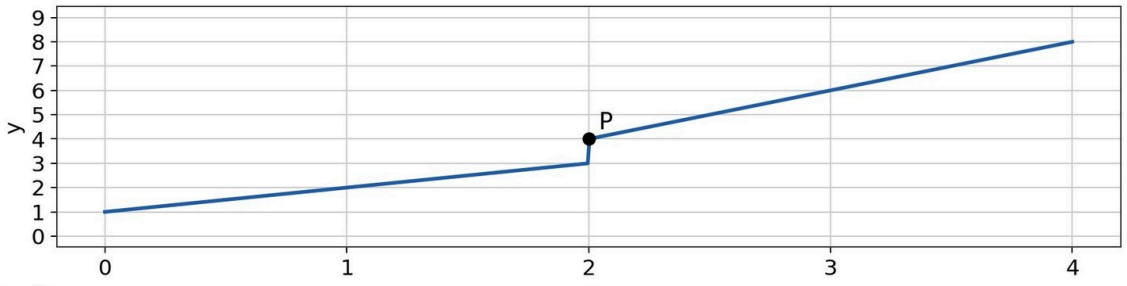
B. $\frac{1}{3}$

C. $\frac{1}{6}$

D. 0

Understand It with Pulse | Flag a mistake

24 The graph of a function f is shown. The value of $\lim_{x \to 2^+} f(x)$ is



A 3

B 4

C 5

D does not exist

Understand It with Pulse | Flag a mistake

25 The value of $\lim_{x \to 3^-} |x - 3|/x - 3$ is

A -1

B 1

C 0

D does not exist

Understand It with Pulse | Flag a mistake

ANSWER KEY

1. A
2. D
3. A
4. 6
5. B
6. B
7. 7
8. D
9. C
10. A
11. D
12. B
13. C
14. C
15. 3
16. D
17. C
18. A
19. A
20. 12
21. 6
22. 12
23. C
24. B
25. A

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