CONCAVITY, SECOND DERIVATIVE, AND CURVE SKETCHING - PRACTICE TEST | NEW BRUNSWICK CALCULUS 120 · UNIT D · 25 QUESTIONS

Concavity, Second Derivative, and Curve Sketching — 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 **For $f(x) = x^3$, the second derivative at $x = 1$ is**

ANSWER _____

Understand It with Pulse | Flag a mistake

2 **For $f(x) = 2x^2 + 3$, the second derivative is**

ANSWER _____

Understand It with Pulse | Flag a mistake

3 **For $f(x) = x^3 + 3x^2$, the inflection point is at $x =$**

ANSWER _____

Understand It with Pulse | Flag a mistake

4 **For f(x) = (x - 1)³ , the inflection point is at x =**

ANSWER _____

Understand It with Pulse | Flag a mistake

5 **For f(x) = x³ - 3x , the graph is concave up when x is**

A greater than 0

B less than 0

C equal to 0

D always concave down

Understand It with Pulse | Flag a mistake

6 **For f(x) = x³ - 4x , the second derivative at x = 1 is**

ANSWER _____

Understand It with Pulse | Flag a mistake

7 For $f(x) = x^3$, the graph is concave up when x is

- A less than 0
- B greater than 0
- C equal to 0
- D always concave down

Understand It with Pulse | Flag a mistake

8 For $f(x) = -x^3$, the second derivative at x = 1 is

ANSWER _____

Understand It with Pulse | Flag a mistake

9 For $f(x) = 3x^2 + 1$, the second derivative is

ANSWER _____

Understand It with Pulse | Flag a mistake

10 For $f(x) = x^3 + 6x^2$, the inflection point is at x =

ANSWER _____

Understand It with Pulse | Flag a mistake

11 For $f(x) = (x - 2)^3$, the inflection point is at x =

ANSWER _____

Understand It with Pulse | Flag a mistake

12 For $f(x) = x^3 + 6x$, the graph is concave up when x is

A less than 0

B greater than 0

C equal to 0

D always concave down

Understand It with Pulse | Flag a mistake

13 **For $f(x) = x^3 - 5x$, the second derivative at $x = 1$ is**

ANSWER _____

Understand It with Pulse | Flag a mistake

14 **For $f(x) = 3x^4$, the second derivative at $x = 1$ is**

ANSWER _____

Understand It with Pulse | Flag a mistake

15 **For $f(x) = 4x^2 + 2$, the second derivative is**

ANSWER _____

Understand It with Pulse | Flag a mistake

16 **For $f(x) = x^3 + 9x^2$, the inflection point is at $x =$**

ANSWER _____

Understand It with Pulse | Flag a mistake

17 **For $f(x) = 2x^2$, the second derivative at $x = 1$ is**

ANSWER _____

Understand It with Pulse | Flag a mistake

18 **For $f(x) = 5x^2 + 4$, the second derivative is**

ANSWER _____

Understand It with Pulse | Flag a mistake

19 **For $f(x) = x^3 + 12x^2$, the inflection point is at $x =$**

ANSWER _____

Understand It with Pulse | Flag a mistake

20 **For $f(x) = -x^4$, the second derivative at $x = 1$ is**

ANSWER _____

Understand It with Pulse | Flag a mistake

21 **For f(x) = 1x² + 5 , the second derivative is**

ANSWER _____

Understand It with Pulse | Flag a mistake

22 **For f(x) = x³ + 15x² , the inflection point is at x =**

ANSWER _____

Understand It with Pulse | Flag a mistake

23 **For f(x) = x⁴ , the second derivative at x = 1 is**

ANSWER _____

Understand It with Pulse | Flag a mistake

24 **For f(x) = 2x² + 6 , the second derivative is**

ANSWER _____

Understand It with Pulse | Flag a mistake

25 **For $f(x) = x^3 + 18x^2$, the inflection point is at x =**

ANSWER

Understand It with Pulse | Flag a mistake

ANSWER KEY

1. 6
2. 4
3. -1
4. 1
5. A
6. 6
7. B
8. -6
9. 6
10. -2
11. 2
12. B
13. 6
14. 36
15. 8
16. -3
17. 4
18. 10
19. -4
20. -12
21. 2
22. -5
23. 12
24. 4
25. -6

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