NEWFOUNDLAND AND LABRADOR MATHEMATICS 3208 · FINAL EXAM · 50 QUESTIONS

Final Exam — 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 $\lim_{x \to 5} (2x + 1)$ is

ANSWER _____

Understand It with Pulse | Flag a mistake

2 The derivative of $f(x) = x^4$ is

A x^3

B $4x^3$

C $5x^4$

D 0

Understand It with Pulse | Flag a mistake

3 If $f(x) = 3x^2 + 2$, then the x coordinate of the critical point is

ANSWER _____

Understand It with Pulse | Flag a mistake

4 $\int x^2\,dx$ is

- **A** $x^3 + C$
- **B** $\frac{x^3}{3} + C$
- **C** $2x^1 + C$
- **D** $\frac{x^2}{2} + C$

Understand It with Pulse | Flag a mistake

5 $\lim_{x \to 4} x^2 - 16/x - 4$ is

ANSWER _____

Understand It with Pulse | Flag a mistake

6 If $f(x) = 3x^2$, then $f'(2)$ is

ANSWER _____

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7 The function $f(x) = 2(x + 1)^2 + 4$ has a local

- A maximum
- B inflection point
- C minimum
- D asymptote

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8 $\int_0^1 1x\,dx$ is

ANSWER _____

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9 $\lim_{x \to 5} \frac{x^2 - 25}{x - 5}$ is

ANSWER _____

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10 If $f(x) = 2x^2 + 3$, then $f'(1)$ is

ANSWER

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11 A rectangular field is fenced on three sides with 80 metres of fencing, the fourth side being a river. The maximum area is, in m^2

ANSWER

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12 $\int \sin x \, dx$ is

A -cos x + C

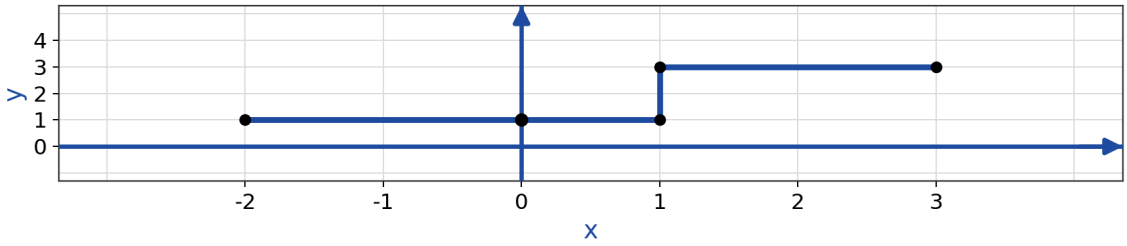
B cos x + C

C sin x + C

D -sin x + C

Understand It with Pulse | Flag a mistake

13 **The graph shows a function with a jump at x = 1 . The left hand limit at x = 1 is**



- **A** 1
- **B** 3
- **C** 2
- **D** does not exist

Understand It with Pulse | Flag a mistake

14 **The derivative of f(x) = cos x is**

- **A** sin x
- **B** -sin x
- **C** cos x
- **D** -cos x

Understand It with Pulse | Flag a mistake

15 If $s(t) = 10t - 5t^2$, then the velocity at time 3 is

ANSWER

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16 $\int \frac{1}{x} dx$ is

A $x + C$

B $\frac{1}{x^2} + C$

C $e^x + C$

D $\ln |x| + C$

Understand It with Pulse | Flag a mistake

17 $\lim_{x \to \infty} \frac{4x^2 - 1}{2x^2 + 3}$ is

A $\frac{2}{4}$

B $\frac{4}{2}$

C 4

D 0

Understand It with Pulse | Flag a mistake

18 The derivative of $f(x) = e^x$ is

A xe^x

B 1

C e^x

D ln x

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19 **A circle has radius 3 units increasing at 4 units per second. The rate of change of its area is, in units² per second, to two decimal places**

ANSWER

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20 **$\int_0^2 (x + 1)\,dx$ is**

ANSWER

Understand It with Pulse | Flag a mistake

21 $\lim_{x \to \infty} \frac{5x - 1}{x^2 + 3}$ **is**

ANSWER

Understand It with Pulse | Flag a mistake

22 **If $f(x) = (2x + 1)^3$, then $f'(1)$ is**

ANSWER

Understand It with Pulse | Flag a mistake

23 A cube has side length 3 units increasing at 1 units per second. The rate of change of its volume is, in units³ per second

ANSWER _____

Understand It with Pulse | Flag a mistake

24 The area between $y = 4 - x^2$ and the x axis from $x = 0$ to $x = 2$ is, to two decimal places

ANSWER _____

Understand It with Pulse | Flag a mistake

25 The function $f(x) = \frac{3x}{x + 1}$ has a horizontal asymptote at

A. $y = 0$

B. $y = 1$

C. $x = -1$

D. $y = 3$

Understand It with Pulse | Flag a mistake

26 **If $f(x) = x^3 - 2x$, then $f'(2)$ is**

ANSWER

Understand It with Pulse | Flag a mistake

27 **If $f'(x) > 0$ on an interval, then f is on that interval**

A increasing

B decreasing

C constant

D concave down

Understand It with Pulse | Flag a mistake

28 If $F'(x) = f(x)$, then $\int_a^b f(x)\,dx$ equals

- A F(b) - F(a)
- B F(a) - F(b)
- C f(b) - f(a)
- D F(b) + F(a)

Understand It with Pulse | Flag a mistake

29 $\lim_{x \to 2} (x^2 - 3x + 2)$ is

ANSWER _____

Understand It with Pulse | Flag a mistake

30 If $f(x) = \frac{1}{x}$, then $f'(1)$ is

ANSWER _____

Understand It with Pulse | Flag a mistake

31 **If $f(x) = x^3 - 3x$, then the critical points have x coordinates whose sum is**

ANSWER

Understand It with Pulse | Flag a mistake

32 **The volume of revolution of $y = x$ from $x = 0$ to $x = 1$ about the x axis, divided by π , is, to two decimal places**

ANSWER

Understand It with Pulse | Flag a mistake

33 $\lim_{x \to 7} \frac{x^2 - 49}{x - 7}$ is

ANSWER

Understand It with Pulse | Flag a mistake

34 **If $x^2 + y^2 = 25$, then $\frac{dy}{dx}$ at (3, 4) is, to two decimal places**

ANSWER

Understand It with Pulse | Flag a mistake

35 **If $f(x) = x^2 - 4x + 3$, then the minimum value is**

ANSWER

Understand It with Pulse | Flag a mistake

36 **$\int_0^3 5\,dx$ is**

ANSWER

Understand It with Pulse | Flag a mistake

37 **$\lim_{x \to 0} (3x^2 + 2)$ is**

ANSWER

Understand It with Pulse | Flag a mistake

38 The product rule states that (fg)' equals

- A f'g'
- B f'g - fg'
- C f'g + fg'
- D f + g

Understand It with Pulse | Flag a mistake

39 If $f(x) = x^2 - 6x + 8$, then the minimum value is

ANSWER _____

Understand It with Pulse | Flag a mistake

40 $\int_0^3 (2x + 1)\,dx$ is

ANSWER _____

Understand It with Pulse | Flag a mistake

41 $\lim_{x \to 2} (x^2 + 3x)$ is

ANSWER

Understand It with Pulse | Flag a mistake

42 If $f(x) = x^2 + 3x$, then $f'(2)$ is

ANSWER

Understand It with Pulse | Flag a mistake

43 If $s(t) = 3t^2$, then the acceleration is

ANSWER

Understand It with Pulse | Flag a mistake

44 $\int_{-2}^{2} x^2 \, dx$ is, to two decimal places

ANSWER

Understand It with Pulse | Flag a mistake

45 $\lim_{x \to 1} \frac{x^3 - 1}{x - 1}$ is

ANSWER

Understand It with Pulse | Flag a mistake

46 If f(x) = sin x , then $f'(\frac{\pi}{2})$ is

ANSWER

Understand It with Pulse | Flag a mistake

47 If $C(x) = x^2 + 5x$, then $C'(10)$ is

ANSWER

Understand It with Pulse | Flag a mistake

48 $\int_0 \pi/^2 \cos x \, dx$ is

ANSWER

Understand It with Pulse | Flag a mistake

49 $\lim_{x \to 4} \sqrt{x}$ is

ANSWER

Understand It with Pulse | Flag a mistake

50 If $f(x) = xe^x$, then $f'(0)$ is

ANSWER

Understand It with Pulse | Flag a mistake

ANSWER KEY

1.	11	**18.**	C	**35.**	-1
2.	B	**19.**	75.36	**36.**	15
3.	0	**20.**	4	**37.**	2
4.	B	**21.**	0	**38.**	C
5.	8	**22.**	54	**39.**	-1
6.	12	**23.**	27	**40.**	12
7.	C	**24.**	5.33	**41.**	10
8.	0.5	**25.**	D	**42.**	7
9.	10	**26.**	10	**43.**	6
10.	4	**27.**	A	**44.**	5.33
11.	800	**28.**	A	**45.**	3
12.	A	**29.**	0	**46.**	0
13.	A	**30.**	-1	**47.**	25
14.	B	**31.**	0	**48.**	1
15.	-20	**32.**	0.33	**49.**	2
16.	D	**33.**	14	**50.**	1
17.	B	**34.**	-0.75		

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