SASKATCHEWAN CALCULUS 30 · 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 Evaluate the limit as x approaches infinity of $\frac{1}{x^2}$.

ANSWER _____

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2 The tangent line to $y = x^2$ at $x = 3$ has slope

ANSWER _____

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3 For $f(x) = x^2 - 12x$, the critical point occurs at x =

ANSWER _____

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4 A rectangle has width 24 m and length twice its width. Its area, in m^2, is

ANSWER _____

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5 The derivative of ln x is

- A $\frac{1}{x}$
- B x
- C ln x
- D 1

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6 The area under y = x from x = 0 to x = 3 is

ANSWER _____

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7 Evaluate the limit as x approaches 9 of x^2 .

ANSWER _____

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8 **The tangent line to $y = x^2$ at $x = 2$ has slope**

ANSWER _____

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9 **For $f(x) = x^3 - 147x$, the critical points occur at $x = \pm$**

ANSWER _____

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10 **A rectangle has perimeter 40 m. Its maximum possible area, in m^2, is**

ANSWER _____

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11 **The derivative of e^{3x} is**

- **A** e^{3x}
- **B** $3e^{x}$
- **C** e^{3}
- **D** $3e^{3x}$

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12 **The definite integral of a function from a to a is**

- **A** 1
- **B** a
- **C** 0
- **D** 2a

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13 **Evaluate the limit as x approaches infinity of $\frac{1}{x^6}$.**

ANSWER _____

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14 **The slope of the curve $y = x^3$ at $x = 2$ is**

ANSWER _____

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15 **The function $f(x) = x^3 - 12x$ has a local maximum at $x = -2$. The value of the function there is**

ANSWER _____

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16 **A rectangle has width 8 m and length twice its width. Its area, in m^2, is**

ANSWER _____

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17 **The derivative of cos 4x is**

- A 4sin 4x
- B sin 4x
- C -4cos 4x
- D -4sin 4x

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18 **Evaluate the definite integral from 0 to 4 of 5x dx.**

ANSWER _____

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19 **Evaluate the limit as x approaches 0 of $\frac{1x}{1x}$.**

ANSWER _____

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20 **The derivative of the function $f(x) = (x + 1)^2$ at $x = 2$ is**

ANSWER _____

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21 **The lowest value taken by $f(x) = x^2 + 10x$ is**

ANSWER _____

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22 **A farmer has 20 m of fencing to enclose a rectangular field against a straight river, so only three sides need fencing. The maximum area, in m^2, is**

ANSWER _____

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23 **The derivative of ln 2x is**

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

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24 **An antiderivative of x^5 is**

- **A** x^6
- **B** $\frac{x^5}{}$
- **C** $5x^4$
- **D** $\frac{x^6}{}$

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25 **Evaluate the limit as x approaches 1 of 2x + 9.**

ANSWER _____

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26 **The derivative of x^6 is**

A x^5

B $6x^5$

C $6x^6$

D x^6

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27 **For $f(x) = x^2 - 4x + 5$, the minimum value of the function is**

ANSWER _____

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28 **A rectangular garden has area 100 m² and is a square. Its perimeter, in metres, is**

ANSWER _____

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29 **The derivative of 2cos x is**

A 2sin x

B sin x

C -2sin x

D -2cos x

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30 **Evaluate the definite integral from 1 to 5 of 4x dx.**

ANSWER _____

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31 **Evaluate the limit as x approaches 5 of 3x + 1.**

ANSWER _____

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32 **The equation of the tangent line to $y = x^2$ at $x = 1$ is y =**

A 2x - 1

B x + 1

C 2x + 1

D x - 1

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33 **For $f(x) = x^2 - 14x$, the critical point occurs at x =**

ANSWER _____

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34 **Two numbers differ by 36. Their minimum possible product is**

ANSWER _____

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35 **The derivative of e^{9x} is**

A $9e^{9x}$

B e^{9x}

C $9e^{x}$

D e^{9}

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36 **Evaluate the definite integral from 0 to 6 of 1x dx.**

ANSWER _____

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37 **Evaluate the limit as x approaches 6 of x^2 .**

ANSWER _____

Understand It with Pulse | Flag a mistake

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

ANSWER _____

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39 **For $f(x) = x^2 + 18x$, the critical point occurs at x =**

ANSWER _____

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40 **A rectangular garden has area 36 m^2 and is a square. Its perimeter, in metres, is**

ANSWER _____

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41 **The derivative of 2sin x is**

A cos x

B 2sin x

C -2cos x

D 2cos x

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42 **Evaluate the definite integral from 0 to 1 of x^2 dx .**

ANSWER _____

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43 **A student claims $f(x) = x^2$ has a hole at $x = 9$. What is wrong with this claim?**

- **A** x^2 is a polynomial, so its graph has no holes
- **B** x^2 is undefined at 9
- **C** the limit at 9 does not exist
- **D** 9 is not in the domain

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44 **If $f(x) = 2x^2$, then $f'(2)$ is**

ANSWER _____

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45 **For $f(x) = x^2 - 12x + 5$, the minimum value of the function is**

ANSWER _____

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46 **A rectangle has perimeter 200 m. Its maximum possible area, in m², is**

ANSWER _____

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47 **The derivative of cos 2x is**

A 2sin 2x

B sin 2x

C -2sin 2x

D -2cos 2x

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48 **Evaluate the definite integral from 0 to 5 of 1 dx.**

ANSWER _____

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49 **Which of the following is true of $f(x) = x^2$ at $x = 7$?**

A Its graph has a hole there

B It is continuous there

C It is undefined there

D Its limit does not exist there

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50 **If $f(x) = 2x^2$, then $f'(1)$ is**

ANSWER _____

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ANSWER KEY

1.	0	**18.**	40	**35.**	A
2.	6	**19.**	1	**36.**	18
3.	6	**20.**	6	**37.**	36
4.	1152	**21.**	-25	**38.**	6
5.	A	**22.**	50	**39.**	-9
6.	4.5	**23.**	B	**40.**	24
7.	81	**24.**	D	**41.**	D
8.	4	**25.**	11	**42.**	0.33
9.	7	**26.**	B	**43.**	A
10.	100	**27.**	1	**44.**	8
11.	D	**28.**	40	**45.**	-31
12.	C	**29.**	C	**46.**	2500
13.	0	**30.**	48	**47.**	C
14.	12	**31.**	16	**48.**	5
15.	16	**32.**	A	**49.**	B
16.	128	**33.**	7	**50.**	4
17.	D	**34.**	-324		

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