NOVA SCOTIA CALCULUS 12 · UNIT D · 25 QUESTIONS

Applications of Derivatives — 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 **A position function is s of t = 1t² + 2t . Find the velocity at t = 3 .**

ANSWER _____

Understand It with Pulse | Flag a mistake

2 **A position function is s of t = 2t² + 1t . Find the velocity at t = 2 .**

ANSWER _____

Understand It with Pulse | Flag a mistake

3 **A position function is s of t = 1t² + 4t . Find the velocity at t = 2 .**

ANSWER _____

Understand It with Pulse | Flag a mistake

4 **A position function is s of t = 3t² + 2t . Find the velocity at t = 1 .**

ANSWER _____

Understand It with Pulse | Flag a mistake

5 **A position function is s of t = 2t² + 3t . Find the velocity at t = 3 .**

ANSWER _____

Understand It with Pulse | Flag a mistake

6 **A position function is s of t = 1t² + 1t . Find the velocity at t = 5 .**

ANSWER _____

Understand It with Pulse | Flag a mistake

7 **A position function is s of t = 3t² + 1t . Find the velocity at t = 2 .**

ANSWER _____

Understand It with Pulse | Flag a mistake

8 **A position function is s of t = 2t² + 2t . Find the velocity at t = 4 .**

ANSWER _____

Understand It with Pulse | Flag a mistake

9 **A position function is s of t = 1t² + 3t . Find the velocity at t = 4 .**

ANSWER _____

Understand It with Pulse | Flag a mistake

10 **A position function is s of t = 4t² + 1t . Find the velocity at t = 1 .**

ANSWER _____

Understand It with Pulse | Flag a mistake

11 **A position function is s of t = 2t² + 5t . Find the velocity at t = 2 .**

ANSWER _____

Understand It with Pulse | Flag a mistake

12 **A position function is s of t = 1t² + 6t . Find the velocity at t = 3 .**

ANSWER _____

Understand It with Pulse | Flag a mistake

13 **A position function is s of t = $3t^2 + 3t$. Find the velocity at t = 2 .**

ANSWER _____

Understand It with Pulse | Flag a mistake

14 **A position function is s of t = $2t^2 + 4t$. Find the velocity at t = 1 .**

ANSWER _____

Understand It with Pulse | Flag a mistake

15 **A critical point of a function occurs where the derivative is**

A zero or undefined

B always zero

C always positive

D equal to the function

Understand It with Pulse | Flag a mistake

16 **If a derivative changes from positive to negative, the function has**

A a local minimum

B a local maximum

C an inflection point only

D a vertical asymptote

Understand It with Pulse | Flag a mistake

17 **If a derivative changes from negative to positive, the function has**

A a local maximum

B no turning point

C a local minimum

D a discontinuity

Understand It with Pulse | Flag a mistake

18 **A function is increasing where its derivative is**

A negative

B zero

C undefined

D positive

Understand It with Pulse | Flag a mistake

19 **A function is decreasing where its derivative is**

A negative

B positive

C zero

D constant

Understand It with Pulse | Flag a mistake

20 **The second derivative test uses the sign of the second derivative at**

- A an endpoint only
- B a critical point
- C a zero of the function
- D infinity

Understand It with Pulse | Flag a mistake

21 **An inflection point is a point where**

- A the function is zero
- B the slope is zero
- C concavity changes
- D the function is maximum

Understand It with Pulse | Flag a mistake

22 **To find absolute extrema on a closed interval, check critical points and**

A zeros only

B asymptotes only

C intercepts only

D endpoints

Understand It with Pulse | Flag a mistake

23 **Optimisation problems ask for a quantity that is**

A as large or as small as possible

B always zero, with no quantity ever to be made as large or as small as possible

C always increasing

D a straight line

Understand It with Pulse | Flag a mistake

24 **Velocity is the derivative of**

A acceleration with respect to time

B position with respect to time

C time with respect to position

D distance with respect to speed

Understand It with Pulse | Flag a mistake

25 **Acceleration is the derivative of**

A position with respect to time

B speed with respect to distance

C velocity with respect to time

D time with respect to velocity

Understand It with Pulse | Flag a mistake

ANSWER KEY

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

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