PRINCE EDWARD ISLAND CALCULUS 12 · UNIT C

Applications of Derivatives — Practice Test

Prince Edward Island Calculus 12 • 25 questions

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 rectangle with perimeter 40 metres has maximum area in m² equal to**

ANSWER _____

Understand It with Pulse | Flag a mistake

2 **For position s = t² metres , the velocity at time t = 3 seconds in metres per second is**

ANSWER _____

Understand It with Pulse | Flag a mistake

3 **The critical point of y = x² - 4x + 1 has x coordinate**

ANSWER _____

Understand It with Pulse | Flag a mistake

4 **The slope of the tangent to $y = x^2 + 1$ at $x = 3$ is**

ANSWER _____

Understand It with Pulse | Flag a mistake

5 **For position $s = 2t^2$ metres , the velocity at time 3 seconds in metres per second is**

ANSWER _____

Understand It with Pulse | Flag a mistake

6 **A local minimum occurs where the derivative**

A changes from positive to negative

B is always negative

C equals zero always

D changes from negative to positive

Understand It with Pulse | Flag a mistake

7 **A square with side 5 metres has area in m² equal to**

ANSWER _____

Understand It with Pulse | Flag a mistake

8 **Acceleration is the derivative of**

A velocity with respect to time

B position with respect to time

C force with respect to time

D time with respect to velocity

Understand It with Pulse | Flag a mistake

9 **An inflection point is a point where**

A concavity changes

B the function is zero

C the slope is zero

D the graph stops

Understand It with Pulse | Flag a mistake

10 **For velocity v = 3t metres per second , the acceleration at any time in metres per second squared is**

ANSWER _____

Understand It with Pulse | Flag a mistake

11 **If the second derivative is negative, the graph is**

- A increasing
- B concave down
- C concave up
- D a straight line

Understand It with Pulse | Flag a mistake

12 **If the second derivative is positive, the graph is**

- A a straight line
- B decreasing
- C concave up
- D concave down

Understand It with Pulse | Flag a mistake

13 **Marginal cost in economics is approximated by**

A the total revenue

B the derivative of the cost function

C the cost itself

D the average cost

Understand It with Pulse | Flag a mistake

14 **Optimization means finding a**

A tangent line

B area value

C maximum or minimum value

D derivative formula

Understand It with Pulse | Flag a mistake

15 **Related rates problems use**

- A the product rule only
- B integration only
- C limits only
- D the chain rule with respect to time

Understand It with Pulse | Flag a mistake

16 **The absolute maximum on a closed interval may occur at**

- A a zero only
- B an asymptote only
- C a critical point or an endpoint
- D the midpoint only

Understand It with Pulse | Flag a mistake

17 **A rectangle with perimeter 60 metres has maximum area in m^2 equal to**

ANSWER

Understand It with Pulse | Flag a mistake

18 **For position $s = t^2$ metres , the velocity at time $t = 5$ seconds in metres per second is**

ANSWER

Understand It with Pulse | Flag a mistake

19 **The critical point of $y = x^2 - 10x$ has x coordinate**

ANSWER

Understand It with Pulse | Flag a mistake

20 **The slope of the tangent to $y = x^2 + 2$ at $x = 2$ is**

ANSWER

Understand It with Pulse | Flag a mistake

21 **For position $s = t^3$ metres , the velocity at time 2 seconds in metres per second is**

ANSWER

Understand It with Pulse | Flag a mistake

22 **A rectangle with perimeter 20 metres has maximum area in m^2 equal to**

ANSWER

Understand It with Pulse | Flag a mistake

23 **For position $s = t^2$ metres , the velocity at time $t = 2$ seconds in metres per second is**

ANSWER

Understand It with Pulse | Flag a mistake

24 **The critical point of $y = x^2 + 6x$ has x coordinate**

ANSWER

Understand It with Pulse | Flag a mistake

25 **The slope of the tangent to $y = x^2 + 3$ at $x = 1$ is**

ANSWER

Understand It with Pulse | Flag a mistake

ANSWER KEY

1.	100	**10.**	3	**19.**	5
2.	6	**11.**	B	**20.**	4
3.	2	**12.**	C	**21.**	12
4.	6	**13.**	B	**22.**	25
5.	12	**14.**	C	**23.**	4
6.	D	**15.**	D	**24.**	-3
7.	25	**16.**	C	**25.**	2
8.	A	**17.**	225		
9.	A	**18.**	10		

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