ONTARIO CALCULUS AND VECTORS, GRADE 12, UNIVERSITY PREPARATION (MCV4U) · UNIT A · 25 QUESTIONS

Rate of Change — 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 $f(x) = x^2$ the average rate of change from x equal to 0 to x equal to 2 is**

- A 2
- B 3
- C 1
- D 4

Understand It with Pulse | Flag a mistake

2 **For f(x) = x² the average rate of change from x equal to 0 to x equal to 3 is**

- A 4
- B 3
- C 2
- D 6

Understand It with Pulse | Flag a mistake

3 **For f(x) = x² the average rate of change from x equal to 0 to x equal to 4 is**

- A 5
- B 3
- C 4
- D 8

Understand It with Pulse | Flag a mistake

4 **The average rate of change of $f(x) = x^2$ from $x = 0$ to $x = 4$ is**

ANSWER _____

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5 **For $f(x) = x^2$ the instantaneous rate of change at x equal to 2 is**

A 4

B 5

C 3

D 2

Understand It with Pulse | Flag a mistake

6 **For $f(x) = x^2$ the instantaneous rate of change at x equal to 3 is**

- A 7
- B 6
- C 5
- D 3

Understand It with Pulse | Flag a mistake

7 **For $f(x) = x^2$ the instantaneous rate of change at x equal to 4 is**

- A 9
- B 7
- C 8
- D 4

Understand It with Pulse | Flag a mistake

8 **The instantaneous rate of change of $f(x) = x^2$ at $x = 5$ is**

ANSWER _____

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9 **The limit as x approaches 1 of x + 2 is**

A 3

B 2

C 4

D 1

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10 **The limit as x approaches 2 of x + 3 is**

A 4

B 6

C 5

D 2

Understand It with Pulse | Flag a mistake

11 **The limit as x approaches 3 of x + 4 is**

A 7

B 6

C 8

D 3

Understand It with Pulse | Flag a mistake

12 **The limit as x approaches 2 of $(x^2 - 4)/(x - 2)$ is**

ANSWER _____

Understand It with Pulse | Flag a mistake

13 **The limit as x approaches 0 of $\sin \frac{2x}{x}$ is**

A 3

B 2

C 1

D 0

Understand It with Pulse | Flag a mistake

14 The limit as x approaches 0 of $\sin \frac{3x}{x}$ is

- **A** 4
- **B** 1
- **C** 3
- **D** 0

Understand It with Pulse | Flag a mistake

15 The limit as x approaches 0 of $\sin \frac{4x}{x}$ is

- **A** 5
- **B** 1
- **C** 0
- **D** 4

Understand It with Pulse | Flag a mistake

16 **The limit as x approaches 0 of (sin 2x)/x is**

ANSWER _____

Understand It with Pulse | Flag a mistake

17 **A position function is $s(t) = 3t^2$ The average velocity from t equal to 1 to t equal to 3, in units per second, is**

A 12

B 14

C 10

D 15

Understand It with Pulse | Flag a mistake

18 **A position function is $s(t) = 4t^2$ The average velocity from t equal to 1 to t equal to 3, in units per second, is**

- A 18
- B 16
- C 14
- D 20

Understand It with Pulse | Flag a mistake

19 **A position function is $s(t) = 5t^2$ The average velocity from t equal to 1 to t equal to 3, in units per second, is**

- A 22
- B 18
- C 20
- D 25

Understand It with Pulse | Flag a mistake

20 **A position function is $s(t) = t^2 + t$. The average velocity from $t = 1$ to $t = 3$, in metres per second, is**

ANSWER

Understand It with Pulse | Flag a mistake

21 **A position function is $s(t) = 3t^2$ The instantaneous velocity at t equal to 2, in units per second, is**

A 14

B 12

C 10

D 6

Understand It with Pulse | Flag a mistake

22 **A position function is $s(t) = 4t^2$ The instantaneous velocity at t equal to 2, in units per second, is**

- A 18
- B 14
- C 16
- D 8

Understand It with Pulse | Flag a mistake

23 **A position function is $s(t) = 5t^2$ The instantaneous velocity at t equal to 2, in units per second, is**

- A 22
- B 18
- C 10
- D 20

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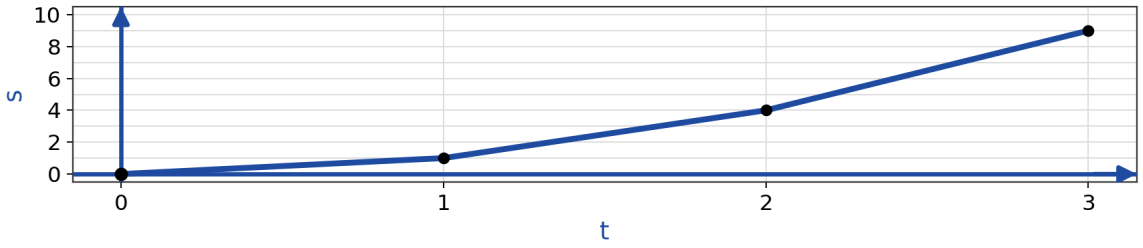
24 **A position function is $s(t) = 3t^2$. The instantaneous velocity at $t = 2$, in metres per second, is**

ANSWER

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25 **The graph shows position against time. The position at time 2 is**

Figure 1



A 1

B 9

C 4

D 2

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ANSWER KEY

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

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