



Grade 12 Calculus Unit Test

Name _____ Date _____ Score _____ / 12

Part A · Limits

01 $\lim (x \rightarrow -3) [5x + 1] =$

Answer: _____

02 $\lim (x \rightarrow 3) [4x - 1] =$

Answer: _____

03 $\lim (x \rightarrow 2) [-6x^3 + 4x^2 - 8] =$

Answer: _____

04 $\lim (x \rightarrow -3) [5x^2 + 5] =$

Answer: _____

Part B · Calculus: Derivatives

05 $d/dx (e^x) =$

Answer: _____

06 $d/dx (8 \cos(5x)) =$

Answer: _____

07 $d/dx (7x^3 + 6x^2 + 4) =$

Answer: _____



Grade 12 Calculus Unit Test

Part B · Calculus: Derivatives (continued)

08 $\frac{d}{dx} (-4x^4 - 4x^2) =$

Answer: _____

Part C · Calculus: Integrals

09 $\int (27x^2) dx =$

Answer: _____

10 $\int (18x^2 - 18x) dx =$

Answer: _____

11 $\int (12x^2) dx =$

Answer: _____

12 $\int (8x - 2) dx =$

Answer: _____

Grade 12 Calculus Unit Test (Answer Key)

Part A · Limits

01 $\lim (x \rightarrow -3) [5x + 1] =$

-14

02 $\lim (x \rightarrow 3) [4x - 1] =$

11

03 $\lim (x \rightarrow 2) [-6x^3 + 4x^2 - 8] =$

-40

04 $\lim (x \rightarrow -3) [5x^2 + 5] =$

50

Part B · Calculus: Derivatives

05 $d/dx (e^x) =$

e^x

06 $d/dx (8 \cos(5x)) =$

$-40 \sin(5x)$

07 $d/dx (7x^3 + 6x^2 + 4) =$

$21x^2 + 12x$

Grade 12 Calculus Unit Test (Answer Key)

Part B · Calculus: Derivatives (continued)

08 $\frac{d}{dx} (-4x^4 - 4x^2) =$

$-16x^3 - 8x$

Part C · Calculus: Integrals

09 $\int (27x^2) dx =$

$9x^3 + C$

10 $\int (18x^2 - 18x) dx =$

$6x^3 - 9x^2 + C$

11 $\int (12x^2) dx =$

$4x^3 + C$

12 $\int (8x - 2) dx =$

$4x^2 - 2x + C$