Evaluate the trigonometric function below from y = 2 up to y = 3.

$$\int ((y)(\csc 3y^2)(\cot 3y^2))dy$$

The associated angles are in radians.

ANSWER: 0

Evaluate the first derivative of the function below at (2, 2).

$$x^3 + y^3 = 1$$

ANSWER: -1

Compute for derivative of the function below for x = 1 and s = 2. Use 3.14 for the value of pi.

$$f(x) = 5s + 3\pi - 12$$

ANSWER: 0

What is the value of the derivative of the function below for y = 1?

$$g(y) = \frac{1}{\sqrt{25 - y^2}}$$

ANSWER: 0.01

A child is flying a kite at height of 40 ft, that is, moving horizontally at rate of 3 ft/s/ If the string is taut, at what rate is the string being paid out when the length of the string released is 50 ft?

ANSWER: 0

What is the definite integral of:

$$\int_0^2 (2x^2\sqrt{x^3 + 1})dx$$

ANSWER: 11.56

What is the slope of the tangent line at the given point?

$$y = x^2 - 6x + 9; at\ (3, 0)$$

ANSWER: 0

Compute for the derivative of the function below for x = 2.

$$h(x) = (\log_2 x^2)(3^{2x^3})$$

ANSWER: 2285525343

What is the value of the derivative of the function below for x = -1?

$$y = 2^{5x}3^{4x^2}$$

ANSWER: -6.74

Evaluate the limit of

$$\lim_{x\to 0}\frac{\sin 3x}{x}$$

The given angel is in radians. ANSWER: 3

Evaluate the polynomial function below from x = 2 up to x = 3.

$$\int (x^3(2-x^2)^{12})dx$$

ANSWER: 31675252190

Evaluate the radical function below from x = 1 up to x = 5.

$$\int \left(3x\sqrt{4-x^2}\right)dx$$

ANSWER: 0.14344

What is the value of the derivative of the function below for x = 1?

$$g(x) = \sqrt[3]{4x^2-1}$$

ANSWER: 1.28

Compute for the derivative of the function below for x = 1.

$$y = \frac{x^2-6x}{\sqrt{x-3}}$$

ANSWER: 0.14344

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What is the value of the derivative for the given value of x?

$$f(x) = x^4 - 5 + x^{-2} + 4x^{-4}; x = -1$$

ANSWER: 14

Find the general equation of the line tangent to the equation below at the given point. What is the coefficient of x in the equation of the tangent line?

$$x^2 - y^2 = 7; at\ (4,-3)$$

ANSWER: -4

What is the value of the derivative for the given value of x?

$$f(x) = x^4 - 5 + x^{-2} + 4x^{-4}; x = -1$$

ANSWER: 1

Evaluate the exponential function below from x = 1 up to x = 5.

$$\int \left(\frac{4^{\ln\left(\frac{1}{x}\right)}}{x} \right) dx$$

ANSWER: 0

Evaluate the trigonometric function below from t = 1 up to t = 5.

$$\int ((3)(\sin t) - (2)(\cos t))dt$$

The associated angles are in radians.

ANSWER: 0

Evaluate the limit of:

$$\lim_{x \to 2} \left(\frac{x+3}{x^2+x+5} \right)$$

ANSWER: 0.45

Evaluate the limit of:

$$\lim_{x \to -1} \frac{x^3+1}{x+1}$$

ANSWER: 3

Evaluate:

$$\int_1^3 [\sqrt{2x-2} + \sqrt{2x-2}]dx$$

ANSWER: 5.33

Evaluate the limit of:

$$\lim_{x \to 4} \frac{\sqrt{x}-2}{x-4}$$

ANSWER: 0.14344

Compute for the derivative of the given function for x = -4.

$$y = (x^2 - 7)\sqrt{x^2 - 5}$$

ANSWER: -37.39

Evaluate:

$$\int_0^2 (-2z^2 + 4z)dz$$

ANSWER: 2.67

Evaluate the function below from x = 1 up to x = 3.

$$\int \left(\frac{2x^3}{2x^2 - 4x + 3}\right) dx$$

All associated angles are in radians.
ANSWER: 0

Find the general equation of the line tangent to the equation below at the given point. What is the value of the constant in the equation of the tangent line?

$$x^2 - y^2 = 7; at\ (4, -3)$$

ANSWER: 25

Is the given function continuous for x greater than or equal to 1?

$$f(x) = x^2\sqrt{x + 6}$$

ANSWER: Yes, since the function will always be defined for any value of x.

Water is flowing at the rate of 2 cubic meters per minute into a tank in the form of an inverted cone having an altitude of 16 meters and a radius of 4 meters. How fast is the water level rising when the water is 5 meters deep?
ANSWER: 0

Is the given function continuous for all real numbers?

$$f(x) = \sqrt{x^2 + 1}$$

ANSWER: Yes, since the function will always be defined for any value of x.

Evaluate:
ANSWER: 0.82

What is the slope of the tangent line at the given point?

$$y = 2x^2 + 4x; at\ (-2, 0)$$

ANSWER: -4

What is the definite integral of:

$\int_{-3}^{5} 4dx$

Answer: 32

Evaluate the limit of:

$\lim_{x \to \pi} \sin(x + \sin x)$

The given angle is in radians.

The given angle is in radians.
ANSWER: 0

Compute for the derivative of the function below for x = 1. Use 3.14 for value of pi.

$y = x^3 + 5x^2 - 4\pi$

ANSWER: 13

What is the slope of the tangent line at the given point?
ANSWER: 4

Find the general equation of the line tangent to the equation below at the given point.
What is the coefficient of y in the equation of the tangent line?

$y = x^2 + 4; at\ (-1, 5)$

ANSWER: 1

Compute for the derivative of the given function for x = -4.

$y = \frac{(x^2 + 3)^3}{\sqrt{1 + x^2}}$

ANSWER: 110.54

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Is the given piecewise function continuous at x = 0

$$f(x) = \begin{cases} x^2 + 3, & x \neq 0 \\ 4, & x = 0 \end{cases}$$

Select one:

a. No, since the graphs of the sub-functions will not meet at x = 0. ✓

What is the slope of the tangent line at the given point?

$$y = 9 - x^2; at\ (2,5)$$

ANSWER: -4

Evaluate the limit of:

$$\lim_{x \to 2}(x^2 - 5x + 1)$$

ANSWER: -5

Compute for the derivative of the function below for x = 1 and a = 2.

$$f(x) = \frac{x^2}{4} + \frac{x}{5} - \frac{a}{3} + 7$$

ANSWER: 0.7

Evaluate the limit of:

$$\lim_{x \to 0} \frac{\cos x}{\sin x - 3}$$

The given angle is in radians.
ANSWER: -0.33

Compute for the third derivative of the given function for x = -5. The given angle is in radians.

$$y = 12 \sin x + \frac{1}{x + 2} + 2x$$

ANSWER: -3.48

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Compute for the derivative of the function below x = 1.
ANSWER: 0.14344

Evaluate the radical function below from x = 1 up to x = 5.

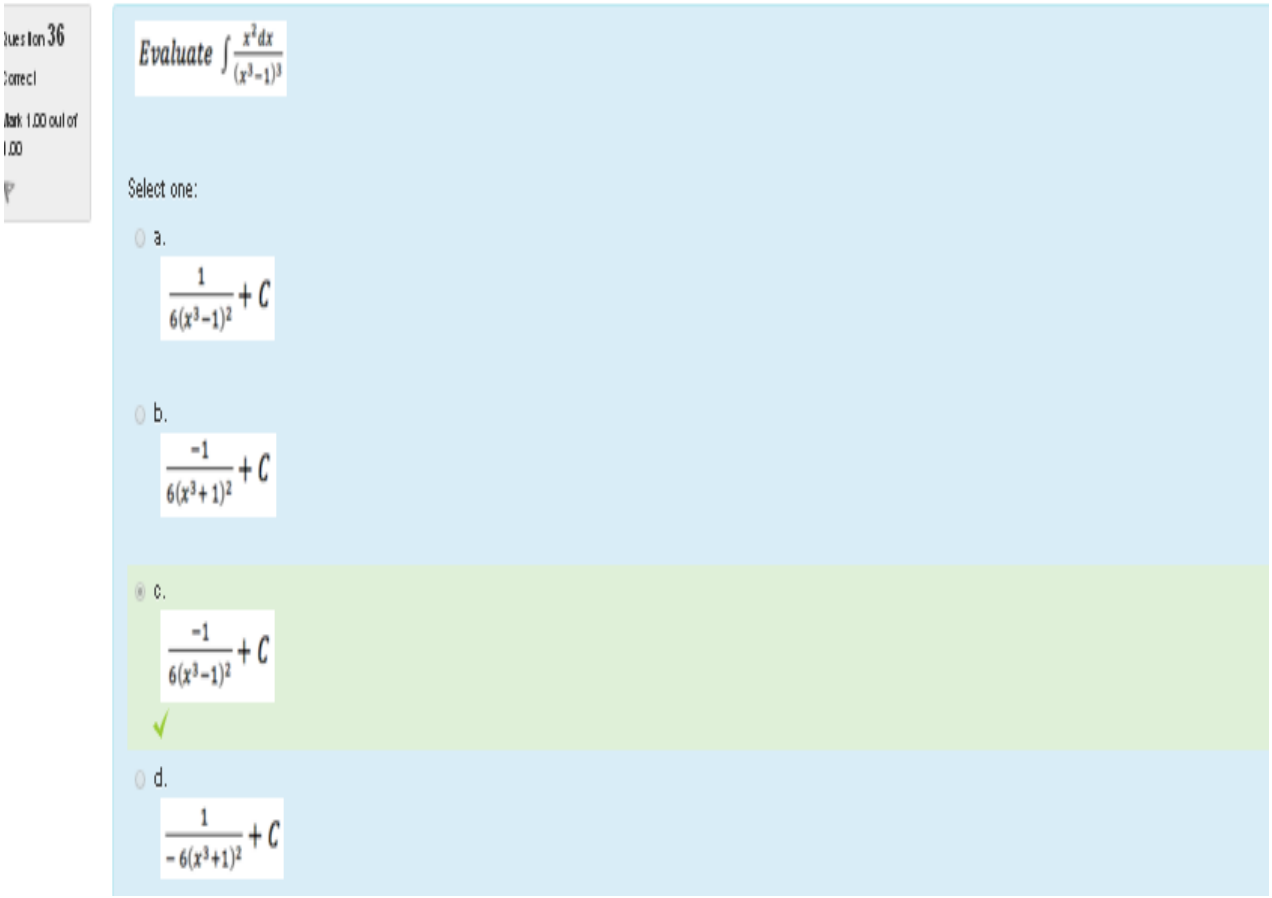
$$\int (\sqrt[3]{3x-4})dx$$

ANSWER: 5.87

Is the function below continuous for all real numbers?

$$f(x) = (x-5)^3(x^2+4)^5$$

ANSWER: The function is continuous for all real numbers since it will always be defined for any value of x.



Find the general equation of the line tangent to the equation below at the given point. What is the coefficient of y in the equation of the tangent line?

$$y = 3x - 7; at\ x = -14$$

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Answer: 1

Which of the following is the general solution of:

$y^2dy + x^3dx = 0$

Select one:

a. $\frac{y^3}{3} + \frac{x^4}{4} = -k$

b. $\frac{y^3}{3} - \frac{x^4}{4} = k$

c. $\frac{y^3}{3} + \frac{x^4}{4} = k$

d. $\frac{y^3}{3} - \frac{x^4}{4} = -k$

ANSWER: C

Find the general equation of the line tangent to the equation below at the given point. What is the coefficient of y in the equation of the tangent line?

$y = 3x - 7; at\ x = -14$

ANSWER: 1

Evaluate the polynomial function below from x = 2 up to x = 3.

$$\int \left(\frac{x^3}{3} + \frac{x^2}{2} + x\right) dx$$

ANSWER: 11.08

Evaluate the function below from x = 1 up to x = 4.

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$$\int \left(\frac{1}{(x)(\ln x)}\right) dx$$

ANSWER: 0

Evaluate the radical function below from x = 1 up to x = 5.

ANSWER: 28.75

Evaluate the first derivative of the function below at (1, -2).

$$x^2y^2 = x^2 + y^2$$

ANSWER: 0.14344

A page is to contain 24 square inches of print. The margins at top and bottom are 1.5 inches and 1 inch at the sides. Find the most economical length (in inches) of the page.
ANSWER: 9

Is the given piecewise function continuous at x = 3?

$$h(x) = \begin{cases} \frac{x^2-9}{x-3} & \text{if } x \neq 3 \\ 7 & \text{if } x = 3 \end{cases}$$

Select one:

- a. No, since the piecewise function will be undefined at x = 3.
- b. Yes, since the graphs of the sub-functions will meet at x = 3.
- c. No, since the graphs of the sub-functions will not meet at x = 3. ✓

What is the definite integral of:

$$\int_0^3 (4x^2 - 2x + 5)dx$$

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ANSWER: 42

Find the general equation of the line tangent to the equation below at the given point. What is the coefficient of x in the equation of the tangent line?

$$y = x^3 - 6x^2 + 8x; at\ (3, -3)$$

ANSWER: 1

Compute for the derivative of the given function for x = -2. The angle is in radians.

$$y = \tan\left(\frac{2}{x}\right)$$

ANSWER: -0.15

Evaluate the first derivative of the function below at (1, -2).

$$x^3 + y^3 = 9$$

ANSWER: -0.25

Compute for the third derivative of the given function for x = 5. The given angle is in radians.

$$y = 12\sin x + \frac{1}{x+2} + 2x$$

ANSWER: -3.48

Boyle's law for the expansion of gas is PV = C, where P is the number of pounds per square unit of pressure, V is the number of cubic units of volume of the gas, and C is a constant. At a certain instant the pressure is 3000 pounds per square feet, the volume is 5 cubic feet, and the volume is increasing at the rate of 3 cubic feet per minute. Find the rate of change of the pressure at this instant.

ANSWER: 0

Evaluate the limit of:

$$\lim_{x \to \frac{\pi}{4}} \frac{\sin x + \cos x}{\tan x}$$

The given angle is in radians.

ANSWER: 1.41

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What is the value of the derivative of the function below for x = 1? The given angle is in radians.

$$y = \cos(3x^2 + 1)$$

ANSWER: 4.54

Build a rectangular pen with three parallel partitions using 500 feet of fencing. What width of the pen (in feet) will maximize its total area?
ANSWER: 125

The volume of an open box with a square base is 256 cubic inches. Find the height of the box (in inches) if the material used to make the box is a minimum.
ANSWER: 4

Evaluate the limit of:

$$\lim_{t \to 0} \frac{\sin^2 3t}{t^2}$$

The given angle is in radians.
ANSWER: 9

What is the value of the derivative of the function below for x = 1?

$$f(x) = \left(\frac{x^3 + 1}{x^2 + 3}\right)(x^2 - 2x^{-1} + 1)$$

ANSWER: 0.5

What is the value of the derivative of the function below for x = -1?

$$y = 2^{5x} 3^{4x^2}$$

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ANSWER: -6.74

Evaluate the limit of:

$$\lim_{x \to 3} \left(x^2 \sqrt{x + 6}\right)$$

ANSWER: 27

Compute for the derivative of the given function for x = -2. The angle is in radians.

$$y = \frac{1 + \cos 2x}{\sin 2x}$$

ANSWER: -1.21

Compute for the derivative of the given function for x = -2.

$$y = (3)(3x - 5)^{-3}$$

ANSWER: 0

Compute for the third derivative of the given function for x = -5.

$$y = x^4 - 9x^2$$

ANSWER: -120

A ladder 7 m long is learning against a wall. If the bottom of the ladder is pushed horizontally toward the wall at 1.5m/s, how fast is the top of the ladder sliding up the wall when the bottom is 2 m from the wall?
ANSWER: 0

Evaluate the function below from x = 1 up to x = 4.

$$\int \left(\frac{1}{(x)(1 + 2\ln x)}\right) dx$$

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ANSWER: 0

Evaluate the exponential function below from x = 2 up to x = 3.

$$\int (e^{3x} e^{2x}) dx$$

ANSWER: 0

Is the piecewise function below continuous at x = -3?

$$g(x) = \begin{cases} \dfrac{x^2 + x - 6}{x + 3}, & x \neq -3 \\ 1, & x = -3 \end{cases}$$

Select one:

- a. The piecewise function is continuous since it has a defined value for the given value of x.
- b. The piecewise function is continuous since the graphs of its sub-functions will meet at x = -3.
- c. The piecewise function is not continuous since the graphs of its sub-functions will not meet at x = -3. ✓

Compute for the derivative of the function below for x = 1.

$$y = \frac{x^2 + 5}{2x - 3}$$

ANSWER: -8

Evaluate the limit of:

$$\lim_{x \to 0} \frac{\sec x - 1}{x}$$

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The given angle is in radians.

ANSWER: 0

Evaluate

$$\textit{Evaluate } \int (10x + 1)\,(5x^2 + x)^3\,dx$$

Select one:

- a. $\dfrac{(5x^2 + x)^4}{4} + C$ ✓

Find the general equation of the line tangent to the equation below at the given point. What is the coefficient of y in the equation of the tangent line?

$$y = x^3 + 2x; at\ x = 0$$

ANSWER: 1

Evaluate the limit of

$$\lim_{x \to 1} \frac{3x - 1}{\sqrt{x + 3}}$$

ANSWER: 1

Find the general equation of the line tangent to the equation below at the given point. What is the value of the constant in the equation of the tangent line?

$$y = 2 + x^2; at\ (-1, 3)$$

ANSWER: -1

What is the value of the derivative of the function below for x = 1?.

$$f(x) = 2x^7 - x^5 + 5x^3 - 8x + 4$$

ANSWER: 16

Evaluate the trigonometric function below from x =1 up to x = 5.

$$\int ((3)(\sec x)(\tan x) - (5)(\csc^2 x))dx$$

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The associated angles are in radians.

ANSWER: 0

What is the slope of the tangent line at the given point?

$$y = 3x - 7; at\ x = -14$$

ANSWER: 3

Evaluate the limit of:

$$\lim_{x \to 2} \sqrt{5x^2}$$

ANSWER: 25

Is the function below continuous at x = 3?

$$f(x) = \frac{x^2 + 4x + 3}{x + 3}$$

Select one:

a. The function is continuous at x = 3 since it will yield a defined value at the said value of x.

Find two numbers whose sum is 10 and the sum of their squares is a minimum.
ANSWER: 5 and 5

Evaluate the radical function below from x = 1 up to x = 5.

$$\int (\sqrt{3x + 4})dx$$

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ANSWER: 14.29