Assessment Questions

Answer the following questions to verify your knowledge of the topics taught in this module. Your answers contribute to your grade for the course. You must achieve an overall grade of 70% to pass this course.

You are permitted only **one** attempt at each question, so think carefully before answering.

To protect the integrity of the assessment, the correct answers are not provided.

If anything is unclear, feel free to post a question in the discussion forum; but do **not** post answers (or information that makes the correct answer easy to guess). In the event of a dispute, the decision of the course staff is final.

Assessment 2.1

1/1 point (graded)

Function f is defined like this:

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

Find the following limit:

$$\lim_{x \to 0} f(x)$$

- 0

- (●) -3
- ( ) does not exist
- ( ) ∞

✔

Submit You have used 1 of 1 attempt

Assessment 2.2

1/1 point (graded)

Function ***g*** is defined like this:

$$g(x) = x^2 + 7$$

What is ***g'(x)***?

2x ✔

Submit You have used 1 of 1 attempt

Assessment 2.3

1/1 point (graded)

Function ***h*** is defined like this:

$$h(x) = 5x^2 - 15x + 3$$

At ***h(1)***, ***h*** is...

- ( ) increasing

- (●) decreasing
- ( ) flat
- ( ) not differentiable

✔

Submit You have used 1 of 1 attempt

Assessment 2.4

2.0/2.0 points (graded)

The function ***k*** is defined like this:

$$k(x) = 2x^4 - 3x^2 + 2x - 20$$

When ***x*** has a value of -1, what is the value of the derivative ***k'(x)***?

0 ✔

0

This point is:

A local minimum ▾ ✔

Submit You have used 1 of 1 attempt

Assessment 2.5

1/1 point (graded)

You are configuring a machine that mixes water-based paint. The proportion of water in the paint determines its viscosity (thickness), and therefore is a major factor in the expected coverage per tin of paint.

With no water, the paint is too thick to spread evenly, so the expected coverage is low. Adding water reduces the viscosity of the paint, enabling it to spread more evenly and achieve greater coverage. However, if too much water is added, the paint becomes too thin and coverage is reduced.

You have determined that the expected coverage for a tin of paint can be calculated by the following function, in which ***x*** represents the number of centileters (cl) of water added to a tin:

$$c(x) = -2x^2 + 30x + 3$$

How many centiliters of water you should configure the machine to add to the paint in order to achieve optimal coverage?
Enter the value in decimal notation

7.5 cl ✔

7.5

Submit You have used 1 of 1 attempt