

THE UNIVERSITY OF AKRON
Theoretical and Applied Mathematics



Calculus I: Differentiation Assessment
Basic Formulas 2
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Version 1.1

Prerequisites:

- ▲ Tutorial on the AcroTeX System of Online Assessment
- ◀ The Practice for this Assessment

In this module, we give a quiz to test your understanding of the basic differentiation rules and how they are applied.

In order to make this a useful academic exercise, you should solve each of the problems on a separate sheet of paper, simplify as needed. Then transfer your answer into the response box. Work neatly and be well-organized. Work as if your paper is to be handed in.

The programming cannot check for a simplified answer, but a simplified answer might be easier to enter into the response box. For example, it is easier to enter 'x' than the non-simplified expression ' $x(2x + 4) - 2x(x + 1) - x$ '.

Instructions: Click on “Begin”. Then take the quiz by filling in the response boxes. You can edit you answers at any time. Syntax errors are immediately flagged and are not counted against you. When you



are finished, click on “End” and your score will appear. To get a corrected quiz, click on the “Correct” button. Solutions can be obtained by clicking on the “Ans” button (the answer field appears at the end of the quiz), and solutions, there there are any provided, can be obtained by shift-clicking on the “Ans” button.



Differentiate each of the following.

1. $\frac{d}{dx} \left(x^3 \sqrt{x} - \frac{4}{\sqrt{x}} \right) =$

2. $\frac{d}{dx} \left(-\frac{1}{3}(x^7 - 3x^2 + 2x) \right) =$

3. $\frac{d}{dx} x^3 \tan(x) =$

4. $\frac{d}{dx} \left[x^{-3} + \frac{1}{x^7} \right] =$

5. $\frac{d}{dt} \left[\frac{3}{\sqrt[3]{t}} + \frac{5}{\cos(t)} \right] =$

or

Comments:

Answers:



Differentiate each of the following.

$$1. \frac{d}{dx} \frac{3x^3}{x^3 + 1} =$$

$$2. \frac{d}{dx} (3x^2 + 6) \left(\frac{1}{2} - 2x \right) =$$

$$3. \frac{d}{dw} \frac{w^2}{\tan(w)} =$$

$$4. \frac{d}{dx} \frac{\csc(x)}{\tan(x)} =$$

$$5. \frac{d}{dx} \frac{1}{\tan(x)} =$$

or

Comments:

Answers:



Differentiate each of the following.

$$1. \frac{d}{dx} \frac{2x}{1+x^2} =$$

$$2. \frac{d}{dx} \frac{2x-1}{x+3} =$$

$$3. \frac{d}{dx} \left(\frac{3x+2}{x} \right) (x^{-5} + 1) =$$

$$4. \frac{d}{dx} \sqrt{x} \sec(x) =$$

$$5. \frac{d}{dx} \frac{\sin(x) \sec(x)}{1+\tan(x)} =$$




or

Comments:

Answers:



Directions:

-  The University of Akron Home Page
-  AcroT_EX Online Home Page
-  Home Page of D. P. Story