

THE UNIVERSITY OF AKRON
Theoretical and Applied Mathematics



Calculus I: Differentiation Practice
Basic Differentiation Formulas 1

D. P. Story

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Prerequisite:

Tutorial on the AcroT_EX System of Online Assessment

You must enter your answer in the response boxes using a certain “natural” syntax. This is a brief tutorial on how to enter your answers in the response boxes below.

Instructions: 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 ‘ $x(2x + 4) - 2x(x + 1) - x$ ’.



Basic Differentiation Practice. Differentiate each of the following.

1. $\frac{d}{dx} x^4 =$

2. $\frac{d}{dx} 5x^5 =$


3. $\frac{d}{dx} 12x^{3/2} =$

4. $\frac{d}{dx} 4x^{-3/2} =$

5. $\frac{d}{dt} \frac{4}{t^2} =$

6. $\frac{d}{dx} \sqrt{x} =$

7. $\frac{d}{ds} \frac{2}{s\sqrt{s}} =$

Repeat this practice set until you get through with *no errors*. Then go on to the next page: 



These practice problems are simply the differentiation formulas for the six trigonometric functions. You should score 100%.

The Trig Rules. Differentiate each of the following.

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

2. $\frac{d}{dx} \cos(x) =$

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

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



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

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



Repeat this practice set until you get through with *no errors*. When you have finished **both** practice sets without error, try taking a online quiz to test your understanding, go to the [Followup Assessment](#).

Directions:

-  Followup Assessment
-  AcroT_EX Online Assessment Page