



Practice – 1

Once you feel confident with the power rule, complete problems 1 to 3. Check your answers by going to the Solutions tab in Moodle.

Instructions: Answer each of the following practice questions on a separate piece of paper. Step by step solutions are provided under the Solutions tab. You will learn the material more thoroughly if you complete the questions before checking the answers.

1. Find the derivative of $f(x) = \sqrt{x}$ using
 - a. first principles, and
 - b. the power rule.

2. Using the power rule, differentiate the following functions. Use positive exponents in each final answer.
 - a. $y = x^7$
 - b. $y = x^{-12}$
 - c. $f(x) = \frac{1}{x^2}$
 - d. $g(x) = \frac{1}{\sqrt[3]{x}}$

3. Find the derivative of each of the following functions. Use positive exponents in each final answer.
 - a. $y = -8x$
 - b. $f(x) = -\frac{2}{x^2}$
 - c. $h(x) = \frac{x^6}{4}$
 - d. $x^3y = 7$
 - e. $y = \left(\frac{x}{3}\right)^2$
 - f. $f(x) = 5\pi$
 - g. $g(x) = -8$