

MCV 4U Assignment: Chapter 2

Knowledge	Application	Communication	Thinking/Inquiry
13	18	10	9

There are 2 components to this assignment; one in-class and one you may take home. The in-class portion will be done individually, with complete use of **your** notes. It will be completed during class time. The take-home portion is due at the beginning of class on _____ . For the take-home component, you may **discuss** solutions with other students, but must hand in an individual, **unique** assignment. If you are not sure what this means, make sure you speak with me on an individual basis. Full solutions are required. Please complete the assignment carefully and completely. You will not receive marks for questions you've answered using methods that differ from what was specified in the question.

Part 1: Take-Home Assignment

1. Use the definition of the derivative to find $f'(x)$ for $f(x) = \frac{6}{x+6}$. [3K]

2. Determine the equation of the tangent to the graph of $y = -x^5 + 5x^3 + \sqrt[3]{x^2}$ when $x = 8$. [3A]

3. A music store supplier experiences weekly costs of $C(x) = -\frac{3}{1000}x^2 + \frac{21}{5}x + 3000$ in producing x CDs per week. [3A]
 - a) Find the marginal cost, $C'(x)$.

 - b) Find the production level, x , at which the marginal cost is \$3.30.

4. Determine the derivative and give your answer in **simplified form**. [3K]
$$m(x) = \frac{(-x+2)^2}{(3+5x)^4}$$

5. Determine the derivative of $y = \left[\frac{1}{(-x^3+1)} \right]^2$. [3K]

6. If $f(x) = x^2$, $g(x) = \frac{1}{x}$, and $h(x) = \sqrt{x^2 + 2x}$, determine the derivative of $y = f(g(h(x)))$. [3T]

7. Your communication mark will be based on the following rubric: [2C]

Criteria	Rating		
Proper mathematical terminology, equal signs, "Therefore" statements, etc.	0 (never)	0.5 (sometimes)	1 (always)
Solutions are clear and well organized	0 (never)	0.5 (sometimes)	1 (always)