1. $f(x) = \tan(2x) + \cos(7x)$. Find $\dfrac{d[f(x)]}{dx}$

2. $f(x) = 3 \cos x$. Find $\dfrac{d[f(x)]}{dx}$

3. $f(x) = 2x \sin x$. Find $\dfrac{d[f(x)]}{dx}$

4. $f(x) = \dfrac{2x^2 + 3x - 5}{\cos x}$. Find $\dfrac{d[f(x)]}{dx}$

5. Discuss the continuity of $f(x) = \begin{cases} 2x^2 + x & \text{if } x \neq 3 \\ 22 & \text{if } x = 3 \end{cases}$
    ie: Where is it discontinuous and of what type and Over what interval(s) is it continuous.

6. $f(x) = 5x^3 - 3x^{-2} + 2x - 9$. Find $\dfrac{d[f(x)]}{dx}$ and **simplify** the results.

7. Recall that the derivative of position is velocity, and the derivative of velocity is acceleration.
    Given the position function $s(t) = 8t^3 - 2t^2 - 3t + 4$, where s is position and t is time. Find the
    acceleration at $t = 2$.

8. Using **only** the given graph of $f(x)$, give the intervals where $\dfrac{d[f(x)]}{dx} > 0$.