# Examples 3.4 – Products of Functions

1.  Use the product rule to find the derivative of each of the following functions.

    **Solution**:

    (a)  $y = (2x^3 - 3x)(x^2 + 5x - 10)$

    (b)  $y = x^2 \sqrt{1 - x^3}$

    (c)  $y = \dfrac{x^2 - 3}{9x + 2}$

2.  Suppose the selling price $P$ per unit of an item depends on $x$, the quantity sold.  The revenue from the sale of $x$ units at price $P$ per unit is $R(x) = xP(x)$.

    (a) Suppose that when 500 units are sold, the price is $5.49 per unit.  Find $R(500)$.

    (b) Suppose that when 500 units are sold, the price is dropping by $0.001 per unit.  Find the rate of change of revenue when 500 units are sold.

    **Solution**:

    (a)

    (b)