Derivative - Quotient rule

For questions $1 - 5$, Use the quotient rule of derivative to find the derivative of the following functions.

1. $W(x) = \dfrac{3x+9}{2-x}$

2. $f(t) = \dfrac{4\sqrt{t}}{t^2-2}$

3. $g(z) = \dfrac{6z^2}{2-z}$

4. $R(w) = \dfrac{3w+w^4}{2w^2+1}$

5. $h(y) = \dfrac{\sqrt{y}+2y}{7y-4y^2}$

6. Find the equation of the tangent line to $f(x) = \dfrac{x^2-4}{5-x}$ at $x = 3$

7. Suppose that the amount of air in a balloon at any time t is given by $v(t) = \dfrac{6\sqrt[3]{t}}{4t+1}$

   Determine if the balloon is being filled with air or being drained of air at $t = 8$.

8. A herring swimming along a straight line has travelled $s(t) = \dfrac{t^2}{t^2+2}$ feet in t seconds.
   Determine the velocity of the herring when it has travelled 3 seconds.