Derivative and Operator Notation

Differentiate the following functions.

1. $f(x) = \frac{4}{x^2}$

2. $f(x) = \frac{5}{\sqrt{x}}$

3. $f(x) = \frac{2}{\sqrt[3]{x}}$

4. $f(x) = x\sin(x^2) + 4x - 5$

5. $f(x) = x^2\cos(\sqrt{x}) - 2x + 6$

6. $f(x) = \frac{\tan(2\pi x)}{5x - 2}$

7. $f(x) = 4x^3 - 2x^2 + x - 6$

8. $f(x) = \sin^2(x) - \sin(x^2)$

9. $f(x) = \cos^2(3x) + \tan^2(2x)$

10. $f(x) = 3\sin(\pi x)\cos(6x)$

11. $f(x) = (3x - 1)^4(2x + 5)^3$

12. $f(x) = \sqrt{\sec(x)}$

13. $f(x) = \sqrt{\sec(3\pi x)}$