

Practice Exercise For Lecture 16

Q1. Differentiate $g(t) = \frac{t^2 + 4}{2t}$.

Answer. $g'(t) = \frac{t^2 - 4}{2t^2}$

Q2. Evaluate $\frac{d}{dx}((x+1)(1+\sqrt{x}))$ at $x = 9$.

Answer. $\frac{17}{3}$

Q3. Differentiate the following functions.

(a) $h(x) = (2x+1)(x+\sqrt{x})$.

Answer. $\frac{8x^{3/2} + 2\sqrt{x} + 6x + 1}{2\sqrt{x}}$

(b) $g(x) = x^{-3}(5x^{-4} + 3)$

Answer. $-35x^{-8} - 9x^{-4}$

(c) $f(x) = \frac{x^3 + 1}{4x^2 + 1}$

Answer. $\frac{4x^4 + 3x^2 - 8x}{(4x^2 + 1)^2}$