(1) Differentiate the following functions.
(a) \( f(x) = x^5 + \pi x + 4.2 \)

(b) \( g(s) = 4s + \frac{7}{s} \)

(c) \( h(t) = 5t^{\frac{1}{4}} - 2^t \)

(d) \( m(x) = x^{14} \sin x + \sqrt{\pi} \)

(e) \( f(t) = 5 \cos t + \frac{2}{\sqrt{t}} \)

(f) \( h(x) = \frac{x^2}{2} + 2xe^x \)

(g) \( g(x) = \frac{4}{x^2 + 5x + 6} + 2e^x \)

(2) Find the tangent line at the indicated point.
(a) \( y = 5x^2 + 1 \) at \( x = 1 \)
(b) \( y = \frac{1}{x^2} \) at \( x = 2 \)

(c) \( y = x^3 - 3x \) at \( x = 1 \)

(d) \( y = 3^t \) at \( t = 0 \)

(3) Differentiate the following functions.

(a) \( f(x) = \cos \pi x \)

(b) \( g(t) = (t - 1)^8 \)

(c) \( h(t) = (t^2 + t + 1)^{17} \)