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

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

(c) \( h(t) = 5t^\frac{1}{3} \)

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

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

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

(g) \( r(t) = (t, 400 - 4.9t^2) \) (a vector function)

(h) \( s(t) = (5t, \frac{1}{t}) \)

(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) \( y = 2^t \) at \( t = 0 \)

(e) \( y = \sin t \) at \( t = \frac{\pi}{6} \)

(f) \( y = |x^2 - 4| \) at \( x = 1 \)

(g) \( y = |x^2 - 4| \) at \( x = 2 \)