# Powers & Polynomials Worksheet

Name _____

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1. Find the derivatives of the given functions.

   (a) $y = x^{12}$

   (b) $y = x^{-12}$

   (c) $y = x^{4/3}$

   (d) $f(r) = \frac{1}{r^{7/2}}$

   (e) $f(x) = \sqrt{\frac{1}{x^3}}$

   (f) $f(t) = 3t^2 - 4t + 1$

   (g) $y = 4x^{3/2} - 5x^{1/2}$

   (h) $y = 3t^5 - 5\sqrt{t} + \frac{7}{t}$

   (i) $y = t^{3/2}(2 + \sqrt{t})$

   (j) $y = \frac{x^2 + 1}{x}$

   (k) $g(x) = x^\pi - x^{-\pi}$

2. Find the equation of the tangent line to $f(x) = x^3 + x$ at the point where $x = 2$.