

1. For each function, find the Taylor series centered at a .

(a) $f(x) = \frac{1}{1-x}, a = 0$

(b) $f(x) = e^x, a = 0$

(c) $g(x) = \sin(x), a = 0$

(d) $f(x) = \cos(x), a = 0$

(e) $g(x) = \arctan(x), a = 0$

(f) $f(t) = \ln(1+x), a = 0$

(g) $f(x) = x - x^3, a = -2$

(h) $f(x) = \cos(x), a = \pi$

(i) $f(x) = x^{-2}, a = 1$

2. For each of the series above, determine the radius of convergence for the series. (Don't worry about testing the endpoints to find the interval of convergence.)