

Exercise 2

Classify each function as a power function, root function, polynomial (state its degree), rational function, algebraic function, trigonometric function, exponential function, or logarithmic function.

(a) $y = \pi^x$

(b) $y = x^\pi$

(c) $y = x^2(2 - x^3)$

(d) $y = \tan t - \cos t$

(e) $y = \frac{s}{1 + s}$

(f) $y = \frac{\sqrt{x^3 - 1}}{1 + \sqrt[3]{x}}$

Solution

$y = \pi^x$ is an exponential function.

$y = x^\pi$ is a power function.

$y = x^2(2 - x^3) = 2x^2 - x^5$ is a polynomial of degree 5 because that's the highest power of x .

$y = \tan t - \cos t$ is a trigonometric function.

$y = s/(1 + s)$ is a rational function.

$y = (\sqrt{x^3 - 1})/(1 + \sqrt[3]{x})$ is an algebraic function.