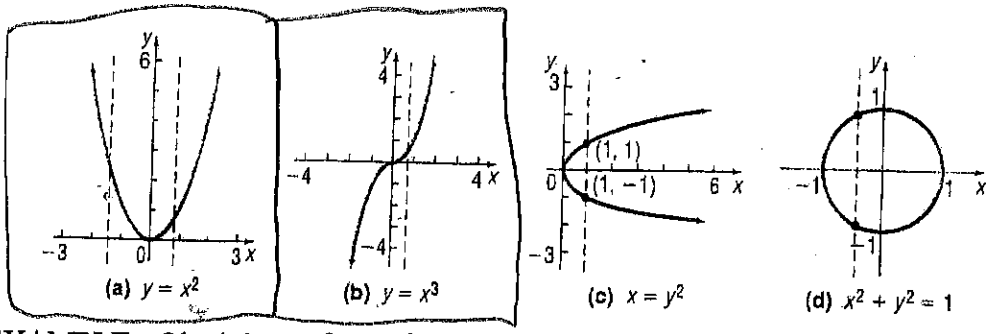
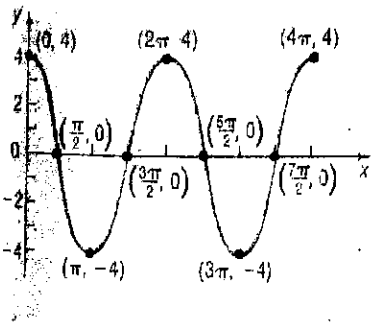
PRECALC Sec. 2.2: The Graph of a Function NAME Key

EXAMPLE: Which of the following graphs are functions?



EXAMPLE: Obtaining Information from the Graph of a Function

(1) Use the graph of the function f to answer each question.



(a) What is f(0), f($\frac{3\pi}{2}$), and f(3π)? 4, 0, −4

(b) What is the domain of f? $[0, 4\pi]$

(c) What is the range of f? $[-4, 4]$

(d) List the intercepts. x-int $(\frac{\pi}{2}, 0), (\frac{3\pi}{2}, 0), (\frac{7\pi}{2}, 0)$; y-int $(0, 4)$

(e) How often does the line y = 2 intersect the graph? 4 times

(f) For what values of x does f(x) = -4? π & 3π

(2) Consider the function $f(x) = \frac{x}{x+2}$ $\frac{1}{2} = \frac{1}{1+2} \Rightarrow \frac{1}{2} = \frac{1}{3}$ NO

(a) Is the point $(1, \frac{1}{2})$ on the graph of f? NO

$\frac{-1}{-1+2} = \frac{-1}{1}$ (b) If x = -1, what is f(x)? −1 What point is on the graph of f? $(-1, -1)$

(c) If f(x) = 2, what is x? −4 What point is on the graph of f? $(-4, 2)$

$\frac{2}{1} = \frac{x}{x+2}$ (d) What is the domain of f? $D: \{x \mid x \neq -2\}$

$2(x+2) = x$
$2x + 4 = x$
$2x - x = -4$
$x = -4$ (e) List the x intercepts, if any, of the graph of f. $(0, 0)$ $0 = \frac{x}{x+2}$

(f) List the y-intercept, if there is one, of the graph of f. $(0, 0)$ $y = \frac{0}{0+2} = \frac{0}{2} = 0$