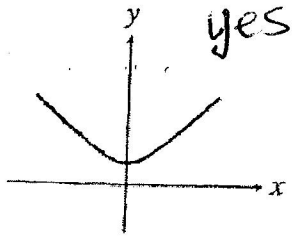
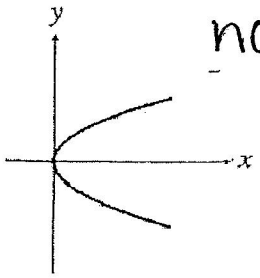
KEY

Precalculus Unit 1 Homework—Important Vocabulary Day 1

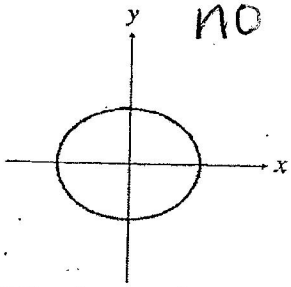
Part 1: Determine if the following are functions:



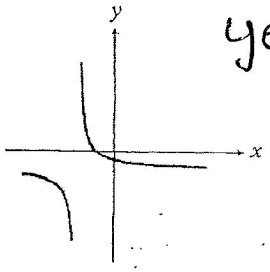
yes



no



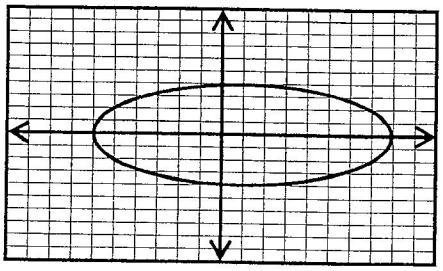
no



yes

Part 2: Identify the domain and range for each of the following (use interval notation):

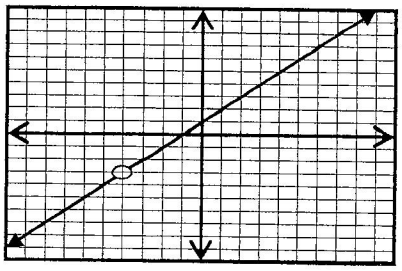
1.



Domain: $[-6, 8]$

Range: $[-4, 4]$

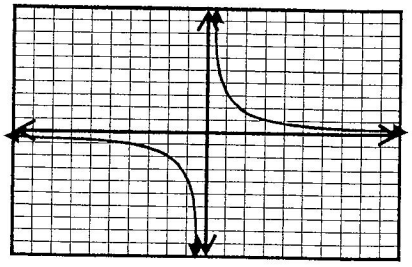
2.



Domain: $(-\infty, -4) \cup (-4, \infty)$

Range: $(-\infty, -3) \cup (-3, \infty)$

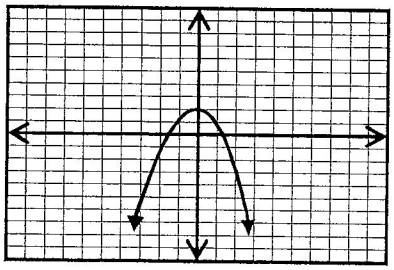
3.



Domain: $(-\infty, 0) \cup (0, \infty)$

Range: $(-\infty, 0) \cup (0, \infty)$

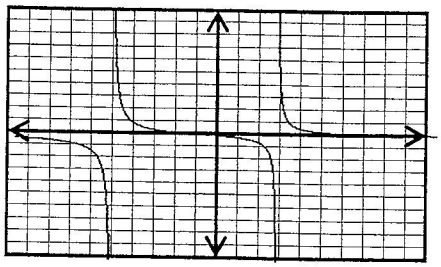
4.



Domain: $(-\infty, \infty)$

Range: $(-\infty, 2]$

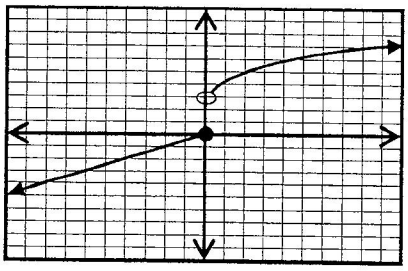
5.



Domain: $(-\infty, -5) \cup (-5, 3) \cup (3, \infty)$

Range: $(-\infty, \infty)$

6.



Domain: $(-\infty, \infty)$

Range: $(-\infty, 0] \cup (3, \infty)$

Part 3: Identify the domain for each function algebraically (no calculator, use interval notation):

A. $f(x) = \sqrt{x^2 + 4}$ $(-\infty, \infty)$

B. $h(x) = \frac{5}{x-3}$ $(-\infty, 3) \cup (3, \infty)$

C. $f(x) = \frac{3x-1}{(x+3)(x-1)}$ $(-\infty, -3) \cup (-3, 1) \cup (1, \infty)$

D. $f(x) = \frac{1}{x} + \frac{5}{x-3}$ $(-\infty, 0) \cup (0, 3) \cup (3, \infty)$

E. $g(x) = \frac{x}{x^2-5x}$ $(-\infty, 0) \cup (0, 5) \cup (5, \infty)$

F. $f(x) = \sqrt{2x - 3}$ $[\frac{3}{2}, \infty)$

G. $h(x) = \frac{\sqrt{4-x^2}}{x-3}$ $[-2, 2]$

Part 4: Identify the range for each function in interval notation. You may use a calculator.

A. $f(x) = 10 - x^2$ $(-\infty, 10]$

B. $g(x) = 5 + \sqrt{4 - x}$ $[5, \infty)$

C. $f(x) = \frac{x^2}{1-x^2}$ $(-\infty, -1) \cup [0, \infty)$

D. $g(x) = \frac{3+x^2}{4-x^2}$ $(-\infty, -1) \cup [\frac{3}{4}, \infty)$