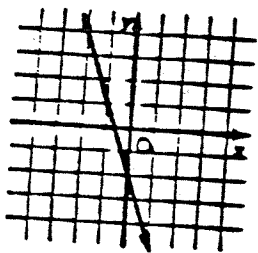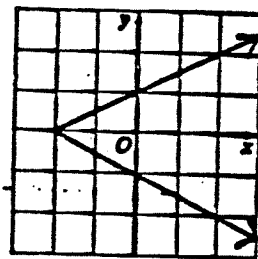# Functions

Directions: For each graph 1. determine whether it is a function
2. determine the Domain (use interval notation)
3. determine the Range (use interval notation)
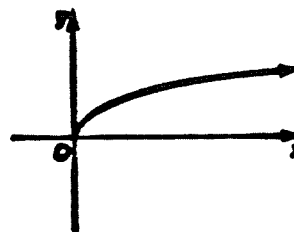
1.
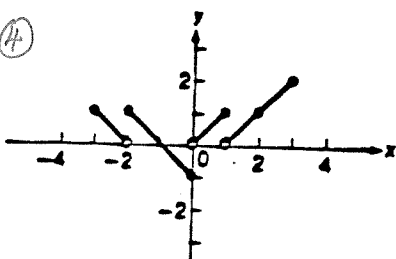

yes
D: $(-\infty, \infty)$
R: $(-\infty, \infty)$

2.
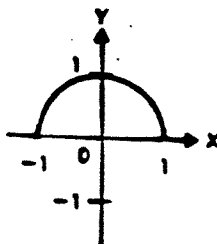

NO
D: $[-2, \infty)$
R: $(-\infty, \infty)$

3.

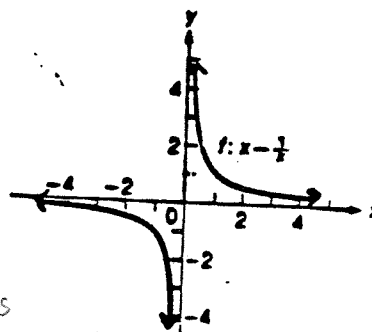
yes
D: $[0, \infty)$
R: $[0, \infty)$

④

yes
D: $[-3, 3]$
R: $[-1, 2]$

5.

yes
D: $[-1, 1]$
R: $[0, 1]$

6.

$f: x - \frac{1}{x}$

yes
D: $(-\infty, 0) \cup (0, \infty)$
R: $(-\infty, 0) \cup (0, \infty)$

7.

$(-2, 0)$ $(1, 0)$
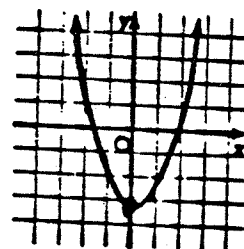
yes
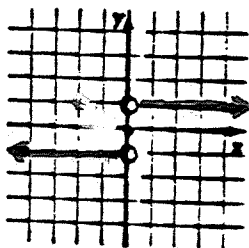D: $[-2, \infty)$
R: $[0, \infty)$

8.

yes
D: $(-\infty, \infty)$
R: $[0, \infty)$

9.

yes
D: $(-\infty, \infty)$
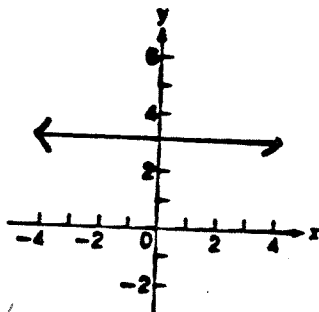R: $[-3, \infty)$

10.

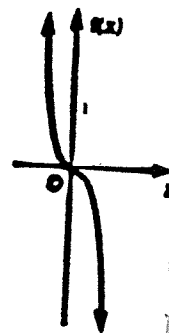$(0,0)$ not included

yes
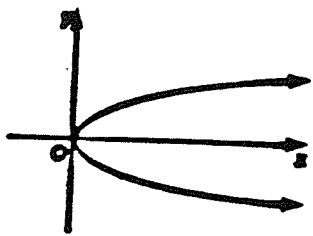D: $(-\infty, 0) \cup (0, \infty)$
R: $[-1] \cup [1]$

11.

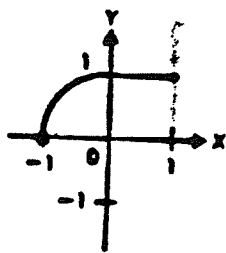

yes
D: $(-\infty, \infty)$ R: $[3]$

12.

yes
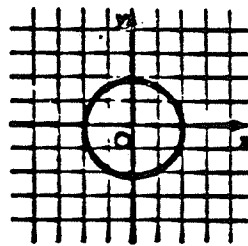D: $(-\infty, \infty)$
R: $(-\infty, \infty)$

14.

NO
D: $[0, \infty)$
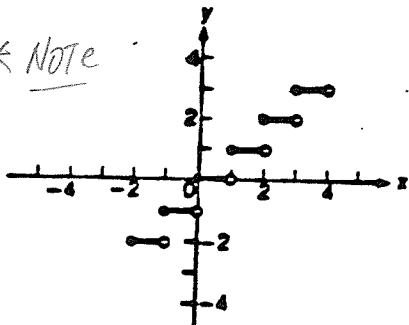R: $(-\infty, \infty)$
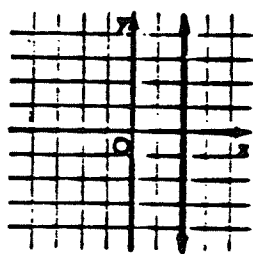
Yes
D: $[-1, 1]$
R: $[0, 1]$
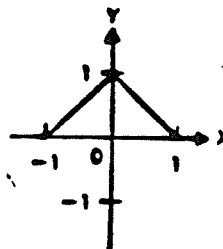
15

NO
D: $[-2, 2]$
R: $[-2, 2]$

⁕ NOTE

Yes
D: $[-2, 4)$ ← does not include
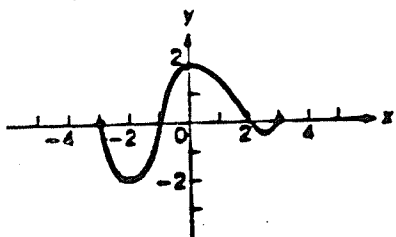R: $[-2] \cup [-1] \cup [0] \cup [1] \cup [2] \cup [3]$

17.
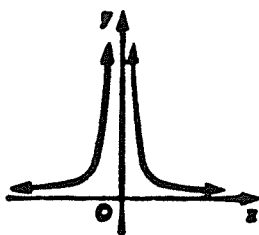
NO
D: $[2]$
R: $(-\infty, \infty)$
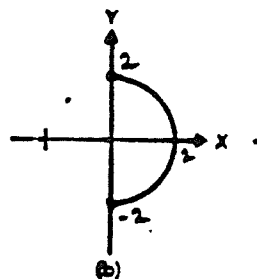
18.

Yes
D: $[-1, 1]$
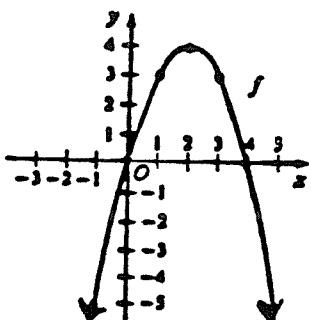R: $[0, 1]$

19.

Yes
D: $[-3, 3]$
R: $[-2, 2]$

20.

Yes
D: $(-\infty, 0) \cup (0, \infty)$
R: $(0, \infty)$

21.

NO
D: $[0, 2]$
R: $[-2, 2]$

(B)

Yes
D: $(-\infty, \infty)$
R: $(-\infty, 4]$

23.

Not a vertical line

Yes
D: $[-1, 1]$
R: $[-1, 1]$

24.

open

sgn

closed circle

open

Yes
D: $[-2, 2]$
R: $[-1] \cup [0] \cup [1]$ compare to #16