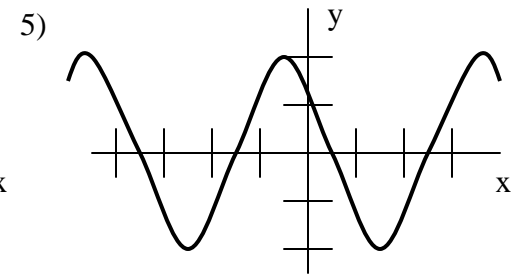
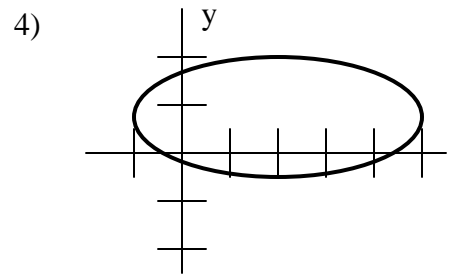
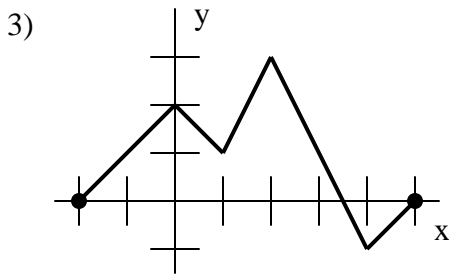
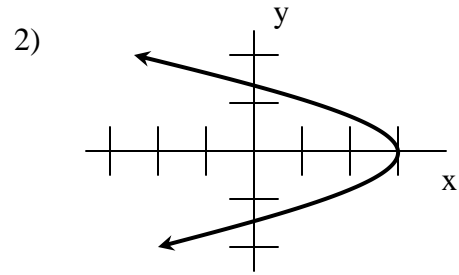
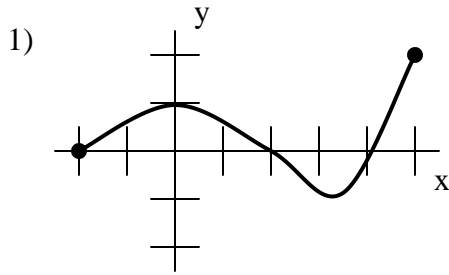
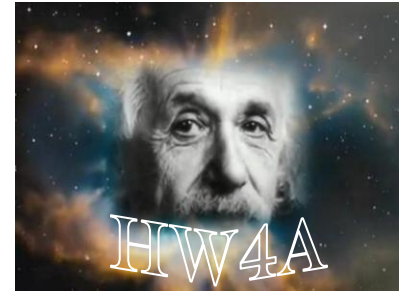


Tell whether the graph of each relation is the graph of a function.
If it is, give the domain and range.



Name the domain for the following rational functions.

6) $f(x) = \frac{1}{x}$

7) $g(x) = \frac{1}{x-9}$

8) $h(x) = \frac{x+2}{x^2+5x+6}$

9) $j(x) = \frac{2x^2}{x^3-9x}$

Name the domain and range for the following functions. Remember, picturing the graph will help.

10) $f(x) = \frac{2}{3}x - 13$

11) $g(x) = x^2 - 6x + 8$

12) $h(x) = |x|$

13) $j(x) = |x| - 2$

14) $k(x) = -3|x| - 2$

15) $f(x) = \sqrt{x}$

16) $g(x) = \sqrt{x-9}$

17) $h(x) = \sqrt{9-x^2}$

18) BONUS ROUND: Name the domain and range for the following piecewise function.

$$f(x) = \begin{cases} x-1 & \text{if } x < 0 \\ x^2 - 2x - 3 & \text{if } 0 \leq x \leq 3 \\ 1 & \text{if } x > 3 \end{cases}$$

- | | | |
|---|--|---|
| 1) $D = \{-2 \leq x \leq 5\}$
$R = \{-1 \leq y \leq 2\}$ | 8) {all reals, $x \neq -3, -2$ } | 14) $D = \{\text{all real no.s}\}$
$R = \{y \leq -2\}$ |
| 2) not a function | 9) {all reals, $x \neq 0, \pm 3$ } | 15) $D = \{x \geq 0\}$
$R = \{y \geq 0\}$ |
| 3) $D = \{-2 \leq x \leq 5\}$
$R = \{-1 \leq y \leq 3\}$ | 10) $D = \{\text{all real no.s}\}$
$R = \{\text{all real no.s}\}$ | 16) $D = \{x \geq 9\}$
$R = \{y \geq 0\}$ |
| 4) not a function | 11) $D = \{\text{all real no.s}\}$
$R = \{y \geq -1\}$ | 17) $D = \{-3 \leq x \leq 3\}$
$R = \{0 \leq y \leq 3\}$ |
| 5) $D = \{\text{all real no.s}\}$
$R = \{-2 \leq y \leq 2\}$ | 12) $D = \{\text{all real no.s}\}$
$R = \{y \geq 0\}$ | 18) $D = \{\text{all real no.s}\}$
$R = \{y \leq 1\}$ |
| 6) {all reals, $x \neq 0$ } | 13) $D = \{\text{all real no.s}\}$
$R = \{y \geq -2\}$ | |
| 7) {all reals, $x \neq 9$ } | | |