Domain/Range Worksheet

State the domain for each of the following. Write answers in interval notation.

1. $y = \dfrac{x+2}{x^2 - 3x + 2}$

2. $y = \dfrac{1}{x-3}$

3. $y = \dfrac{1}{x^2 - 5x + 6}$

4. $f(x) = \sqrt{(x-1)(x+2)}$

5. $f(t) = \dfrac{1}{\sqrt{t^2 - 4}}$

6. $g(x) = \dfrac{\sqrt{1-x}}{\sqrt{x+1}}$

State the range for each of the following. Write answers in interval notation.

7. $f(x) = -\sqrt{x+2}$

8. $f(x) = |x+3|$

9. $f(x) = |x| + 3$

State the domain and the range for each of the following. Write answers in interval notation.

10. $y = \dfrac{1}{x-11}$

11. $y = \sqrt{3-x}$

12. $y = \sqrt{x^2 - 5x - 14}$

13. $h(x) = \sqrt{2x - 7}$
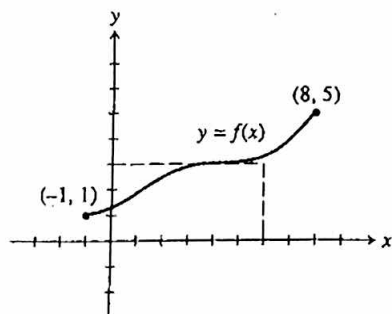
14. $f(x) = x^2 - 1$

15. $f(x) = x^3$

In Exercises 11 and 12, interpret the graph.
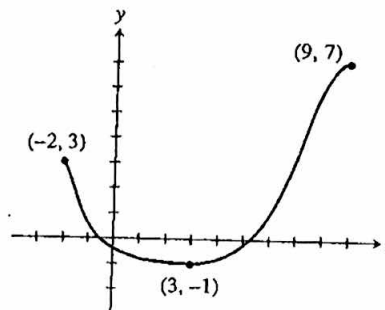
✱11. Use the graph of $y = f(x)$.

   a. $f(8) = ?$ b. $f(-1) = ?$
   c. The domain of f is ?   d. The range of f is ?
   e. If $f(a) = 3$, then $a = ?$

✱12. Use the graph of $y = g(x)$.

   a. $g(3) = ?$ b. $g(-2) = ?$
   c. The domain of g is ?   d. The range of g is ?
   e. If $g(a) = 3$, explain why you cannot conclude that
     $a = -2$.

(8, 5)

$y = f(x)$

(−1, 1)

For Exercise 11

(9, 7)

(−2, 3)

(3, −1)

For Exercise 12

Domain/Range/Functions Review   Name _____ Date _____

State the domain of each function in interval notation. Also state the range for items 2, 3, 4, 5, & 6.

1. $f(x) = \dfrac{1}{x^2 + 2x - 8}$

2. $f(x) = \sqrt{9 - x^2}$

3. $f(x) = \sqrt{x - 6}$

4. $f(x) = \dfrac{x^2 - 9}{x + 2}$

5. $y = \sqrt{x^2 - 5x - 14}$

6. $f(x) = 4^x$

7. $y = \dfrac{x^2 - 1}{x - 1}$

Use the graph at the right for items 8 – 12.

8. Find $f(2)$.

9. Find a if $f(a) = 5$.

10. Find $f(0)$.

11. Write the domain in interval notation.

12. Write the range in interval notation.