

1-1 Functions

Write each set of numbers in set-builder and interval notation, if possible.

1. $x > 50$

ANSWER:

$$\{x \mid x > 50, x \in \mathbb{R}\}; (50, \infty)$$

2. $x < -13$

ANSWER:

$$\{x \mid x < -13, x \in \mathbb{R}\}; (-\infty, -13)$$

3. $x \leq -4$

ANSWER:

$$\{x \mid x \leq -4, x \in \mathbb{R}\}; (-\infty, -4]$$

4. $\{-4, -3, -2, -1, \dots\}$

ANSWER:

$$\{x \mid -4 \leq x, x \in \mathbb{Z}\}$$

5. $8 < x < 99$

ANSWER:

$$\{x \mid 8 < x < 99, x \in \mathbb{R}\}; (8, 99)$$

6. $-31 < x \leq 64$

ANSWER:

$$\{x \mid -31 < x \leq 64, x \in \mathbb{R}\}; (-31, 64]$$

7. $x < -19$ or $x > 21$

ANSWER:

$$\{x \mid x < -19 \text{ or } x > 21, x \in \mathbb{R}\}; (-\infty, -19) \cup (21, \infty)$$

8. $x < 0$ or $x \geq 100$

ANSWER:

$$\{x \mid x < 0 \text{ or } x \geq 100, x \in \mathbb{R}\}; (-\infty, 0) \cup [100, \infty)$$

9. $\{-0.25, 0, 0.25, 0.50, \dots\}$

ANSWER:

$$\{x \mid 0.25n = x, n \geq -1, n \in \mathbb{Z}\}$$

10. $x \leq 61$ or $x \geq 67$

ANSWER:

$$\{x \mid x \leq 61 \text{ or } x \geq 67, x \in \mathbb{R}\}; (-\infty, 61] \cup [67, \infty)$$

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11. $x \leq -45$ or $x > 86$

ANSWER:

$$\{x \mid x \leq -45 \text{ or } x > 86, x \in \mathbb{R}\}; (-\infty, -45] \cup (86, \infty)$$

12. all multiples of 8

ANSWER:

$$\{x \mid x = 8n, n \in \mathbb{Z}\}$$

13. all multiples of 5

ANSWER:

$$\{x \mid x = 5n, n \in \mathbb{Z}\}$$

14. $x \geq 32$

ANSWER:

$$\{x \mid x \geq 32, x \in \mathbb{R}\}; [32, \infty)$$

Determine whether each relation represents y as a function of x .

15. The input value x is a bank account number and the output value y is the account balance.

ANSWER:

function

16. The input value x is the year and the output value y is the day of the week.

ANSWER:

not a function

x	y
-50	2.11
-40	2.14
-30	2.16
-20	2.17
-10	2.17
0	2.18

17.

ANSWER:

function

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x	y
0.01	423
0.04	449
0.04	451
0.07	466
0.08	478
0.09	482

18.

ANSWER:

not a function

19. $\frac{1}{x} = y$

ANSWER:

function

20. $x^2 = y + 2$

ANSWER:

function

21. $3y + 4x = 11$

ANSWER:

function

22. $4y^2 + 18 = 96x$

ANSWER:

not a function

23. $\sqrt{48y} = x$

ANSWER:

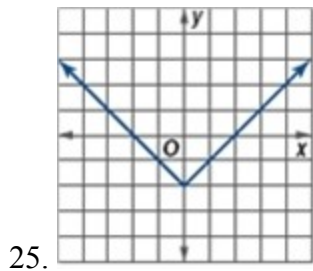
function

24. $\frac{x}{y} = y - 6$

ANSWER:

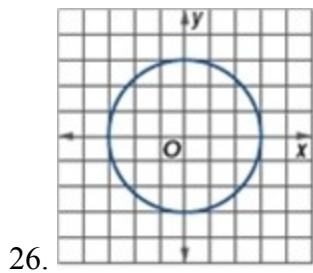
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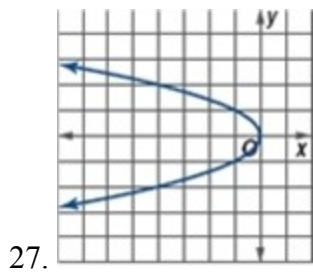
ANSWER:

function



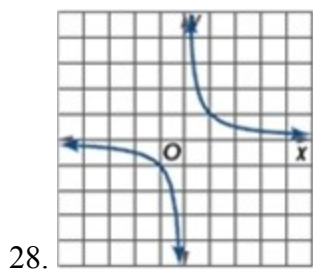
ANSWER:

not a function



ANSWER:

not a function



ANSWER:

function

1-1 Functions

Find each function value.

$$32. f(t) = \frac{4t + 11}{3t^2 + 5t + 1}$$

a. $f(-6)$

b. $f(4t)$

c. $f(3 - 2a)$

ANSWER:

a. $\frac{13}{79}$

b. $\frac{16t + 11}{48t^2 + 20t + 1}$

c. $\frac{-8a + 23}{12a^2 - 46a + 43}$

$$36. g(m) = 3 + \sqrt{m^2 - 4}$$

a. $g(-2)$

b. $g(3m)$

c. $g(4m - 2)$

ANSWER:

a. 3

b. $3 + \sqrt{9m^2 - 4}$

c. $3 + 4\sqrt{m^2 - m}$