

NAME _____

DATE _____

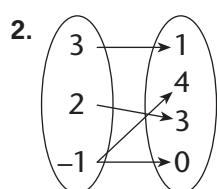
Module Test A

Module 9

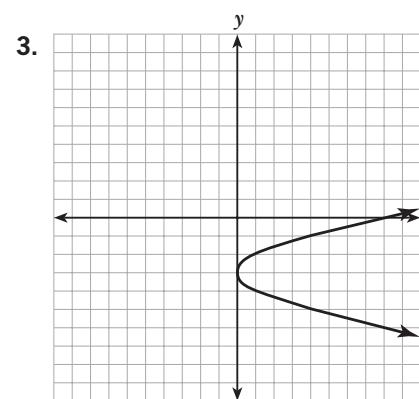
1. Find the domain and range of the relation. $T = \{(-3, 4), (8, 7), (4, 5), (-8, 6), (2, 5)\}$

Domain = {-8, -3, 2, 4, 8}; Range = {4, 5, 6, 7}

Is the relation a function? Yes or No.



no



no

4. Find the domain and range of the relation given by the equation $y = x + 3$.

Domain = \mathbb{R} ; Range = \mathbb{R}

5. The relation given by the equation $y = x + 4$ has a domain of $\{-2, 0, 2\}$. Find its range

Range = {2, 4, 6}

Use the set of ordered pairs $\{(2, 3), (5, 6), (-1, 8), (3, 5)\}$ for questions 6 and 7.

6. What output is associated with an input of 5?

6

7. What input is associated with an output of 3?

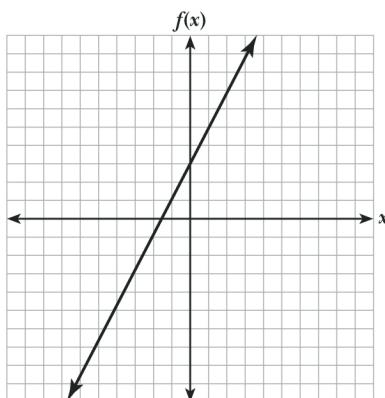
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8. Evaluate $f(1)$ if $f(x) = x^2 + 4x - 3$. **2**

9. Evaluate $g(4)$ if $g(x) = \sqrt{x+5} + 3x$. **15**

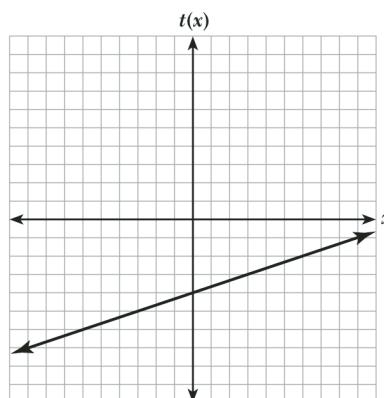
10. Evaluate $h(-2)$ if $h(x) = \frac{2x}{(x+3)}$. **-4**

11. Use the graph of $f(x)$ to find $f(0)$.



3

12. Use the graph of $t(x)$ to find $t(3)$.



-3

Write a function for the pattern shown in each table.

13.

x	$f(x)$
0	0
1	-3
2	-6
3	-9

$f(x) = -3x$

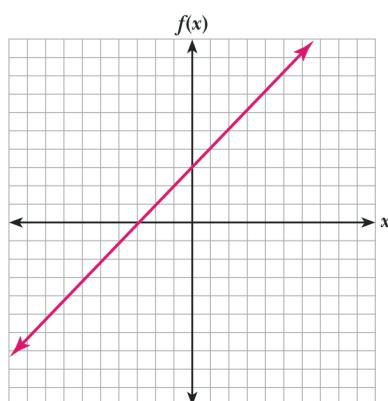
14.

x	$g(x)$
0	0
1	4
2	8
3	12

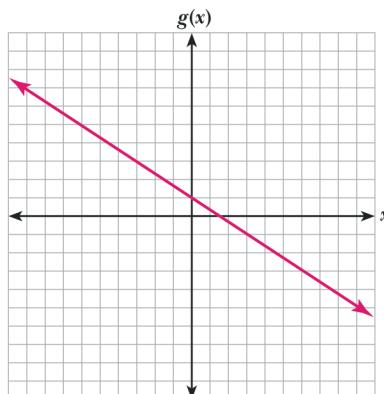
$g(x) = 4x$

Graph each function.

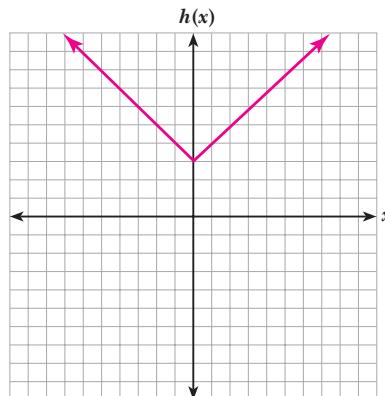
15. $f(x) = x + 3$



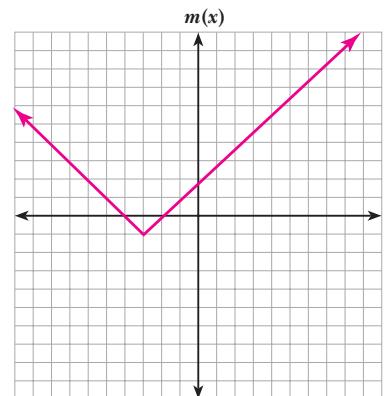
16. $g(x) = -\frac{2}{3}x + 1$



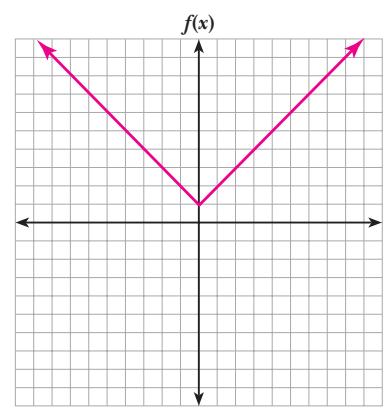
17. $h(x) = |x| + 3$



18. $m(x) = |x + 3| - 1$



19. Graph $f(x) = \begin{cases} x + 1, & x > 0 \\ -x + 1, & x \leq 0 \end{cases}$



20. Evaluate $f(g(-2))$ if $f(x) = x - 2$ and $g(x) = 2x^2$. 6

21. Evaluate $g(f(3))$ if $f(x) = x^2$ and $g(x) = -\frac{1}{x}$. $-\frac{1}{3}$

22. Find $f(g(x))$ if $f(x) = x^2 + 1$ and $g(x) = -4x$. $16x^2 + 1$

23. Find $g(f(x))$ if $f(x) = 2x + 5$ and $g(x) = 4x - 1$. $8x + 19$

24. The charge for a one-hour rental is \$65. The charge for a two-hour rental is \$105. The rental charge is a linear function. Write the equation for this function and use this function to find the cost of a 3 hour rental.

$f(x) = 40x + 25; \$145$

25. Which of the following is **not** a function?

A. $y = 3$
C. $y = x^2$

B. $y = |x|$
D. $x = y^2$

26. Find $f(-3)$ if $f(x) = x^2 + x - 4$.

A. -16

B. 2

C. 8

D. -10

27. Answer the following questions in the space provided. Show all work.

Be sure to label your responses (A), (B), and (C).

- A. Graph $f(x)$ and $g(x)$ if $f(x) = 3x + 4$ and $g(x) = \frac{x - 4}{3}$.

- B. Find $f(g(x))$ and $(g(f(x)))$.

$$f(g(x)) = 3\left(\frac{x - 4}{3}\right) + 4 = x - 4 + 4 = x$$

$$g(f(x)) = \frac{3x + 4 - 4}{3} = \frac{3x}{3} = x$$

- C. Are $f(x)$ and $g(x)$ inverses? Explain.

Yes, $f(x)$ and $g(x)$ are inverses. Two functions

are inverses if $f(g(x)) = g(f(x)) = x$.

