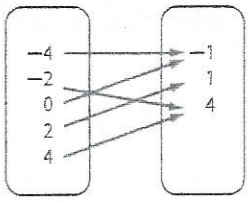
Name: Key

Determine whether each relation is a function. Explain.

1.



yes

2.

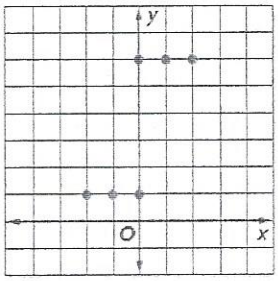
Domain	Range
2	6
5	7
6	9
6	10

NO

3. $\{(2, 2), (-1, 5), (5, 2), (2, -4)\}$ NO

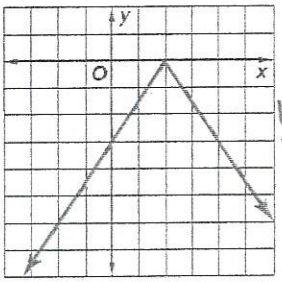
4. $y = \frac{1}{2}x - 6$ yes

5.



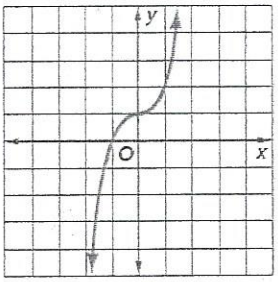
No

6.



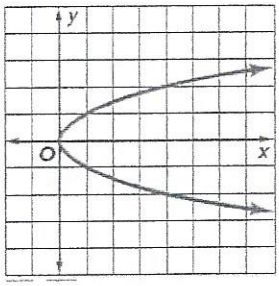
yes

7.



yes

8.



NO

29. $y = -8$ yes

30. $x = 15$ No

31. $y = 3x - 2$ yes

9. **SCHOOL ENROLLMENT** The table shows the total enrollment in U.S. public schools.

0 1 2 3

School Year	2004–05	2005–06	2006–07	2007–08
Enrollment (in thousands)	48,560	48,710	48,948	49,091

Source: *The World Almanac*

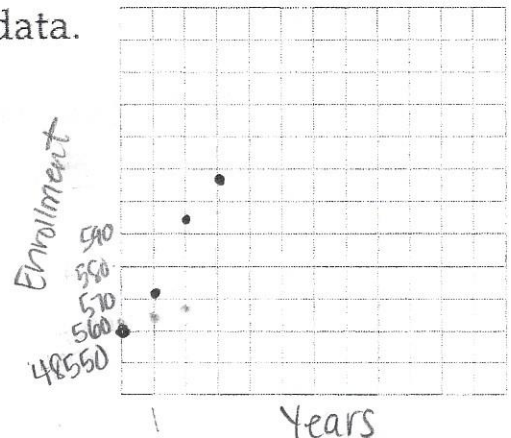
a. Write a set of ordered pairs representing the data in the table if x is the number of school years since 2004–2005. $\{(0, 48560), (1, 48710), (2, 48948), (3, 49091)\}$

b. Draw a graph showing the relationship between the year and enrollment.

c. Describe the domain and range of the data.

D: $\{0, 1, 2, 3\}$

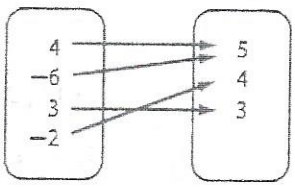
R: $\{48560, 48710, 48948, 49091\}$



Name:_____

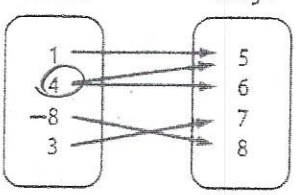
Determine whether each relation is a function. Explain.

20.



yes

21.



No

22.

Domain	Range
4	6
−5	3
6	−3
−5	5

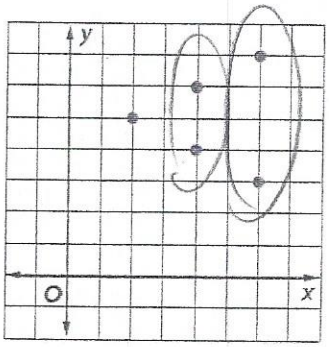
No

23.

Domain	Range
−4	2
3	−5
4	2
9	−7
−3	−5

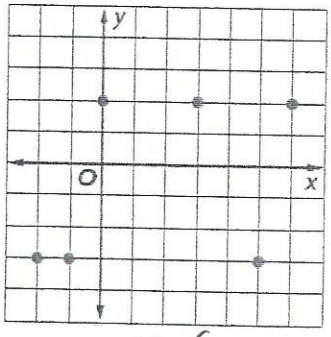
yes

24.



no

25.



yes

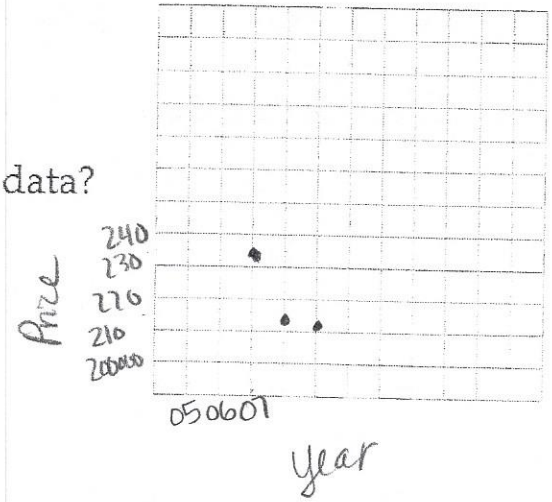
26. CCSS **SENSE-MAKING** The table shows the median home prices in the United States, from 2007 to 2009.

Year	Median Home Price ($)
2007	234,300
2008	213,200
2009	212,200

a. Write a set of ordered pairs representing the data in the table.

{(2007, 234300), (2008, 213200), (2009, 212200)}

b. Draw a graph showing the relationship between the year and price.



c. What is the domain and range for this data?

D: {2007, 2008, 2009}

R: {212,200, 213200, 234300}

Name: _____

10. CCSS **REASONING** The cost of sending cell phone pictures is given by $y = 0.25x$, where x is the number of pictures that you send and y is the cost in dollars.

a. Write the equation in function notation. Interpret the function in terms of the context.

$f(x) = .25x$ The cost of sending picture is a function based on how many you send.

b. Find $f(5)$ and $f(12)$. What do these values represent?

$f(5) = .25(5)$

$= \$1.25$

$f(12) = .25(12)$

$= \$3$

c. Determine the domain and range of this function.

D: {5, 12}

R: {1.25, 3}

If $f(x) = 6x + 7$ and $g(x) = x^2 - 4$, find each value.

11 $f(-3)$

$6(-3)+7$

$= -18+7$

$= -11$

12. $f(m)$

$6(m)+7$

$= 6m+7$

13. $f(r-2)$

$6(r-2)+7$

$= 6r-12+7$

$= 6r-5$

14. $g(5)$

$(5)^2 - 4$

$= 25-4$

$= 21$

15. $g(a) + 9$

$a^2 - 4 + 9$

$= a^2 + 5$

16. $g(-4t)$

$(-4t)^2 - 4$

$= 16t^2 - 4$

17. $f(q+1)$

$6(q+1)+7$

$= 6q+6+7$

$= 6q+13$

18. $f(2) + g(2)$

$6(2)+7 + (2)^2 - 4$

$= 12+7+4-4$

$= 19$

19. $g(-b)$

$(-b)^2 - 4$

$= b^2 - 4$

Name: _____

If $f(x) = -2x - 3$ and $g(x) = x^2 + 5x$, find each value.

33. $f(-1)$

$-2(-1)-3$

$=2-3$

$=\boxed{-1}$

34. $f(6)$

$-2(6)-3$

$=-12-3$

$=\boxed{-15}$

35. $g(2)$

$(2)^2+5(2)$

$=4+10$

$=\boxed{14}$

36. $g(-3)$

$(-3)^2+5(-3)$

$=9-15$

$=\boxed{-6}$

37. $g(-2)+2$

$(-2)^2+5(-2)+2$

$=4-10+2$

$=\boxed{-4}$

38. $f(0)-7$

$-2(0)-3-7$

$=-3-7$

$=\boxed{-10}$

39. $f(4y)$

$-2(4y)-3$

$=\boxed{-8y-3}$

40. $g(-6m)$

$(-6m)^2+5(-6m)$

$\boxed{36m^2-30m}$

41. $f(c-5)$

$-2(c-5)-3$

$=-2c+10-3$

$=\boxed{-2c+7}$

42. $f(r+2)$

$-2(r+2)-3$

$=-2r-4-3$

$=\boxed{-2r-7}$

43. $5[f(d)]$

$5[-2(d)-3]$

$=5(-2d-3)$

$=\boxed{-10d-15}$

44. $3[g(n)]$

$3[n^2+5n]$

$\boxed{3n^2+15n}$

Name: _____

53. CCSS **PERSEVERANCE** If $f(3b - 1) = 9b - 1$, find one possible expression for $f(x)$.

$9(3b-1)-1$

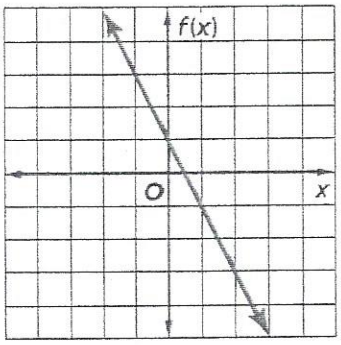
$= 27b-9-1$

$= 27b-10$

54. ERROR ANALYSIS Corazon thinks $f(x)$ and $g(x)$ are representations of the same function. Maggie disagrees. Who is correct? Explain your reasoning.

Maggie.

The points given in the table are not part of the function on the graph.



x	g(x)
−1	1
0	−1
1	−3
2	−5
3	−7

57. Determine which of the following relations is a function.

F $\{(-3, 2), (4, 1), (-3, 5)\}$

G $\{(2, -1), (4, -1), (2, 6)\}$

H $\{(-3, -4), (-3, 6), (8, -2)\}$

J $\{(5, -1), (3, -2), (-2, -2)\}$