

F.IF.A.1: Defining Functions 1

- 1 Which relation is *not* a function?
 - 1) $\{(1, 5), (2, 6), (3, 6), (4, 7)\}$
 - 2) $\{(4, 7), (2, 1), (-3, 6), (3, 4)\}$
 - 3) $\{(-1, 6), (1, 3), (2, 5), (1, 7)\}$
 - 4) $\{(-1, 2), (0, 5), (5, 0), (2, -1)\}$
- 2 Which relation represents a function?
 - 1) $\{(0, 3), (2, 4), (0, 6)\}$
 - 2) $\{(-7, 5), (-7, 1), (-10, 3), (-4, 3)\}$
 - 3) $\{(2, 0), (6, 2), (6, -2)\}$
 - 4) $\{(-6, 5), (-3, 2), (1, 2), (6, 5)\}$
- 3 Which set of ordered pairs represents a function?
 - 1) $\{(0, 4), (2, 4), (2, 5)\}$
 - 2) $\{(6, 0), (5, 0), (4, 0)\}$
 - 3) $\{(4, 1), (6, 2), (6, 3), (5, 0)\}$
 - 4) $\{(0, 4), (1, 4), (0, 5), (1, 5)\}$
- 4 Which relation is *not* a function?
 - 1) $\{(2, 4), (1, 2), (0, 0), (-1, 2), (-2, 4)\}$
 - 2) $\{(2, 4), (1, 1), (0, 0), (-1, 1), (-2, 4)\}$
 - 3) $\{(2, 2), (1, 1), (0, 0), (-1, 1), (-2, 2)\}$
 - 4) $\{(2, 2), (1, 1), (0, 0), (1, -1), (2, -2)\}$
- 5 Which relation is a function?
 - 1) $\{(2, 1), (3, 1), (4, 1), (5, 1)\}$
 - 2) $\{(1, 2), (1, 3), (1, 4), (1, 5)\}$
 - 3) $\{(2, 3), (3, 2), (4, 2), (2, 4)\}$
 - 4) $\{(1, 6), (2, 8), (3, 9), (3, 12)\}$
- 6 Which set is a function?
 - 1) $\{(3, 4), (3, 5), (3, 6), (3, 7)\}$
 - 2) $\{(1, 2), (3, 4), (4, 3), (2, 1)\}$
 - 3) $\{(6, 7), (7, 8), (8, 9), (6, 5)\}$
 - 4) $\{(0, 2), (3, 4), (0, 8), (5, 6)\}$
- 7 Which set of ordered pairs is *not* a function?
 - 1) $\{(3, 1), (2, 1), (1, 2), (3, 2)\}$
 - 2) $\{(4, 1), (5, 1), (6, 1), (7, 1)\}$
 - 3) $\{(1, 2), (3, 4), (4, 5), (5, 6)\}$
 - 4) $\{(0, 0), (1, 1), (2, 2), (3, 3)\}$
- 8 Which set of ordered pairs does *not* represent a function?
 - 1) $\{(3, -2), (-2, 3), (4, -1), (-1, 4)\}$
 - 2) $\{(3, -2), (3, -4), (4, -1), (4, -3)\}$
 - 3) $\{(3, -2), (4, -3), (5, -4), (6, -5)\}$
 - 4) $\{(3, -2), (5, -2), (4, -2), (-1, -2)\}$
- 9 Which set of points does *not* represent a function?
 - 1) $\{(-3, -2), (-1, -2), (0, -1), (1, 0)\}$
 - 2) $\{(-2, 3), (0, 4), (3, -2), (4, 2)\}$
 - 3) $\{(2, -2), (1, 4), (2, 5), (3, 6)\}$
 - 4) $\{(-2, 4), (1, 1), (2, 4), (3, 9)\}$
- 10 Which relation is a function?
 - 1) $\left\{ \left(\frac{3}{4}, 0 \right), (0, 1), \left(\frac{3}{4}, 2 \right) \right\}$
 - 2) $\left\{ (-2, 2), \left(-\frac{1}{2}, 1 \right), (-2, 4) \right\}$
 - 3) $\{(-1, 4), (0, 5), (0, 4)\}$
 - 4) $\{(2, 1), (4, 3), (6, 5)\}$
- 11 Given the relation $R = \{(-2, 3), (a, 4), (1, 9), (0, 7)\}$. Which replacement for a makes this relation a function?
 - 1) 1
 - 2) -2
 - 3) 0
 - 4) 4
- 12 Given the relation $\{(8, 2), (3, 6), (7, 5), (k, 4)\}$, which value of k will result in the relation *not* being a function?
 - 1) 1
 - 2) 2
 - 3) 3
 - 4) 4
- 13 The relation defined by the set of ordered pairs $\{(0, 2), (-2, 2), (1, 4), (4, 1), (0, -1)\}$ is *not* a function. Which of the ordered pairs listed below, if omitted from this relation, will make the resulting set a function?
 - 1) $(-2, -2)$
 - 2) $(1, 4)$
 - 3) $(4, 1)$
 - 4) $(0, -1)$
- 14 The function f has a domain of $\{1, 3, 5, 7\}$ and a range of $\{2, 4, 6\}$. Could f be represented by $\{(1, 2), (3, 4), (5, 6), (7, 2)\}$? Justify your answer.

15 Which table represents a function?

1)

x	2	4	2	4
f(x)	3	5	7	9

2)

x	0	-1	0	1
f(x)	0	1	-1	0

3)

x	3	5	7	9
f(x)	2	4	2	4

4)

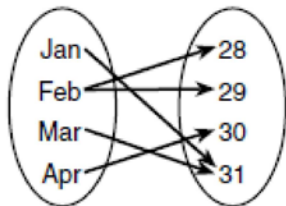
x	0	1	-1	0
f(x)	0	-1	0	1

16 A function is shown in the table below.

x	f(x)
-4	2
-1	-4
0	-2
3	16

If included in the table, which ordered pair, $(-4, 1)$ or $(1, -4)$, would result in a relation that is no longer a function? Explain your answer.

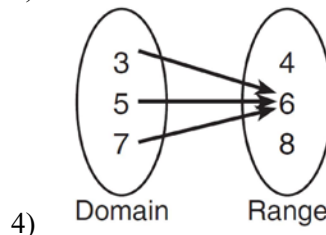
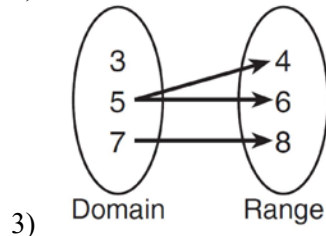
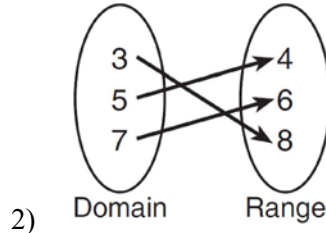
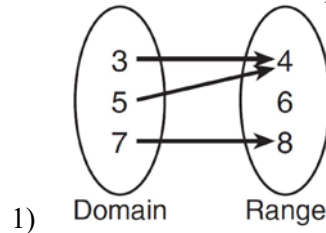
17 A mapping is shown in the diagram below.



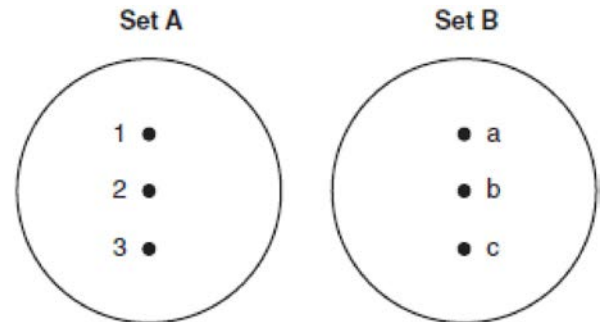
This mapping is

- 1) a function, because Feb has two outputs, 28 and 29
- 2) a function, because two inputs, Jan and Mar, result in the output 31
- 3) not a function, because Feb has two outputs, 28 and 29
- 4) not a function, because two inputs, Jan and Mar, result in the output 31

18 Which relation does *not* represent a function?



19 On the accompanying diagram, draw a mapping of a relation from set A to set B that is not a function. Explain why the relationship you drew is not a function.



F.IF.A.1: Defining Functions 1 Answer Section

1 ANS: 3

An element of the domain, 1, is paired with two different elements of the range, 3 and 7.

REF: 080919ia

2 ANS: 4

In (4), each element in the domain corresponds to a unique element in the range.

REF: 011018ia

3 ANS: 2

In (2), each element in the domain corresponds to a unique element in the range.

REF: 061116ia

4 ANS: 4

An element of the domain, 1, is paired with two different elements of the range, 1 and -1 .

REF: 011405ia

5 ANS: 1

REF: 061413ia

6 ANS: 2

REF: 011514ia

7 ANS: 1

REF: 080403b

8 ANS: 2

REF: 060715b

9 ANS: 3

REF: 061612ia

10 ANS: 4

In (4), each element in the domain corresponds to a unique element in the range.

REF: 011105ia

11 ANS: 4

REF: 068634siii

12 ANS: 3

REF: 011305a2

13 ANS: 4

REF: 018530siii

14 ANS:

Yes, because every element of the domain is assigned one unique element in the range.

REF: 061430ai

15 ANS: 3

REF: 061504ai

16 ANS:

$(-4, 1)$, because then every element of the domain is not assigned one unique element in the range.

REF: 011527ai

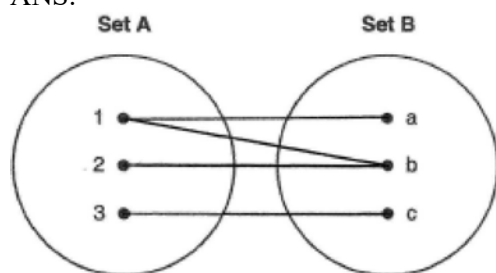
17 ANS: 3

REF: 061709ai

18 ANS: 3

REF: 011604a2

19 ANS:



two different elements in Set B.

The relationship is not a function because an element in Set A maps to

REF: 010622b