

• Example 1

Given the set

$$A = \{(a, b), (1, c), (1, d), (2, 2), (b, d), (b, a)\}$$

find a relation C such that $A \setminus C$ is a function defined on $\{1, a, 2, b\}$.

We take

$$C = \{(1, d), (b, a)\} \text{ so that}$$

$$A \setminus C = \{(a, b), (1, c), (2, 2), (b, d)\}$$

is a function defined on $\{1, a, 2, b\}$

Note that this answer is not unique.

● ● ● CHECK YOURSELF 1

Given the set $B = \{(1, b), (b, c), (2, c), (b, d)\}$ find a relation C such that $B \setminus C$ is a function defined on $\{1, b, 2\}$.

● ● ● CHECK YOURSELF ANSWER

1. $C = \{(b, d)\}$.

Note: This answer is not unique.

4.13 Exercises

Name _____

Section _____

Date _____

A N S W E R S

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

In exercises 1–5, find a relation C such that $A \setminus C$ is a function defined on the set of first elements in each set A .

1. $A = \{(1, 2), (2, c), (3, b), (1, 3), (3, c)\}$

2. $A = \{(a, d), (b, b), (b, c), (1, c), (3, a)\}$

3. $A = \{(3, b), (4, 1), (5, a), (6, b), (1, 1)\}$

4. $A = \{(0, 0), (0, 1), (1, 0), (2, 0), (0, 3)\}$

5. $A = \{(a, 1), (a, 2), (a, 3), (a, 4), (a, 5)\}$

In exercises 6–10, find a relation $C \subset A$ such that C is a function.

6. $A = \{(b, d), (a, c), (c, a), (b, a), (c, b)\}$

7. $A = \{(a, 2), (1, 3), (a, a), (2, b), (3, a)\}$

8. $A = \{(1, 5), (2, 1), (0, 3), (4, 9), (6, 10)\}$

9. $A = \{(c, c), (1, b), (2, c), (c, 2), (c, 3)\}$

10. $A = \{(2, 1), (3, a), (2, b), (1, b), (2, 3)\}$