

Name:

For each of the following six questions, four possible answers are provided, but only one of them is correct: write the corresponding letter in the box!

1] Let $f: X \rightarrow Y$ be a function. Let x and x' be elements of X such that $x = x'$.
 What do we need to know about f to conclude that $f(x) = f(x')$?

- A] Nothing: this is true for all functions f .
- B] We need f to be injective.
- C] We need f to be surjective.
- D] We need f to be bijective.

2] Let $f: X \rightarrow Y$ be a function. Let x and x' be elements of X such that $f(x) = f(x')$.
 What do we need to know about f to conclude that $x = x'$?

- A] Nothing: this is true for all functions f .
- B] We need f to be injective.
- C] We need f to be surjective.
- D] We need f to be bijective.

3] Let $f: X \rightarrow Y$ be a function. Let x and x' be elements of X such that $f(x) \neq f(x')$.
 What do we need to know about f to conclude that $x \neq x'$?

- A] Nothing: this is true for all functions f .
- B] We need f to be injective.
- C] We need f to be surjective.
- D] We need f to be bijective.

4] Let $f: X \rightarrow Y$ be a function. Let y be an element of Y .
 What do we need to know about f to conclude that $y = f(x)$ for some $x \in X$?

- A] Nothing: this is true for all functions f .
- B] We need f to be injective.
- C] We need f to be surjective.
- D] We need f to be bijective.

5] Let $f: X \rightarrow Y$ be a function. Let y be an element of Y .
 What do we need to know about f to conclude that $y = f(x)$ for exactly one $x \in X$?

- A] Nothing: this is true for all functions f .
- B] We need f to be injective.
- C] We need f to be surjective.
- D] We need f to be bijective.

6] Let $f: X \rightarrow Y$ be a function. Let x be an element of X .
 What do we need to know about f to conclude that $f(x) = y$ for exactly one $y \in Y$?

- A] Nothing: this is true for all functions f .
- B] We need f to be injective.
- C] We need f to be surjective.
- D] We need f to be bijective.