Chapter 1

Functions and Graphs

Exercise Solution

Exercise 1.1.49

Instruction

Table 1.1 lists the NBA championship winners for the years 2001 to 2012.

Year	Winner
2001	La Lakers
2002	La Lakers
2003	San Antonio Spurs
2004	Detroit Pistons
2005	San Antonio Spurs
2006	Miami Heat
2007	San Antonio Spurs
2008	Boston Celtics
2009	La Lakers
2010	La Lakers
2011	Dallas Mavericks
2012	Miami Heat

Table 1.1: NBA championship winners for the years 2001 to 2012

(a) Consider the relation in which the domain values are the years 2001 to 2012 and the range is the corresponding winner. Is this relation a function? Explain why or why not.

(b) Consider the relation where the domain values are the winners and the range is the corresponding years. Is this relation a function? Explain why or why not.

Solution

(a) The relation in which the domain values are the years and the range is the corresponding winner is a function because a given year have only one winner. This functions set of inputs is the years 2001 to 2012 and the output is a team name. The rule for assigning each input to exactly one output is defined by table 1.1.

(b) The relation where the domain values are the winners and the range is the corresponding years is not a function because there are teams that have won more than once during the years. A function shall have a rule for assigning each input to exactly one output. In this case we cannot deduce exactly one year from just knowing a team name.

Answer

(a) Yes, a function.

(b) No, not a function.