Discrete Mathematics with Applications, 4th edition
Susanna S. Epp

Solutions for Supplementary Exercises: Chapter1

1. **Section 1.1**

   (a) r is positive

   (b) negative; the square of r is positive

   (c) negative; the square of r is positive

2. **Section 1.2**

   (a) yes

   (b) yes

   (c) no

   (d) yes

   (e) no

3. **Section 1.3**

   (a) $\{(-2,3),(-2,5),(-1,2),(-1,3),(-1,5),(0,1),(0,2),(0,3),(0,5),,(1,2),(1,3),(1,5),(2,3),(2,5)\}$

   (b) R is not a function because there are elements of the domain that are related to more than one element of the co-domain. For example, -2 is related to both 3 and 5.