EXERCISE 2.1

1. If (3x+1,y−32)=(35,31) find the values of x and y.
2. If the set A has 3 elements and the set B={3,4,5}, then find the number of elements in (A×B).
3. If G={7,8} and H={5,4,2}, find G×H and H×G.
4. State whether each of the following statements are true or false. If the statement is false, rewrite the given statement correctly. (i) If P={m,n} and Q={n,m}, then P×Q={(m,n),(n,m)}. (ii) If A and B are non-empty sets, then A×B is a non-empty set of ordered pairs (x, y) such that x∈A and y∈B. (iii) If A={1,2}, B={3,4}, then A×(B∩φ)=φ.
5. If A={−1,1} find A×A×A.
6. If A×B={(a,x),(a,y), (b, x), (b, y)}. Find A and B.
7. Let A={1,2}, B={1,2,3,4}, C={5,6} and D={5,6,7,8}. Verify that (i) A×(B∩C)=(A×B)∩(A×C). (ii) A×C is a subset of B×D.
8. Let A={1,2} and B={3,4}. Write A×B. How many subsets will A×B have? List them.
9. Let A and B be two sets such that n(A)=3 and n(B)=2. If (x, 1), (y, 2), (z, 1) are in A×B, find A and B, where x, y and z are distinct elements.
10. The Cartesian product A×A has 9 elements among which are found (−1,0) and (0,1). Find the set A and the remaining elements of A×A.