

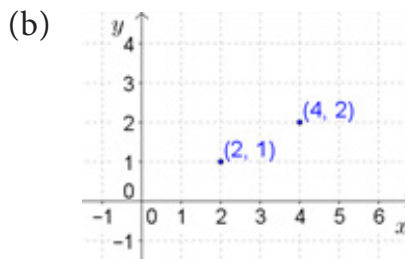
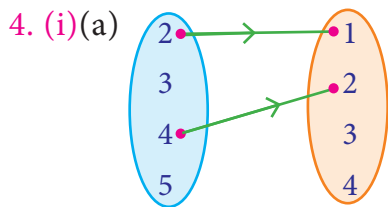
ANSWERS

Exercise 1.1

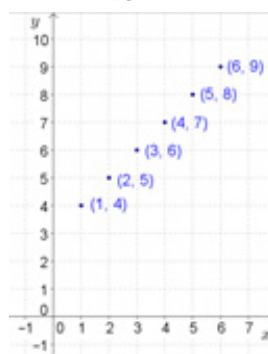
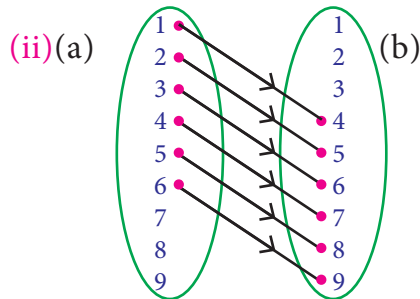
- 1.(i) $A \times B = \{(2,1), (2,-4), (-2,1), (-2,-4), (3,1), (3,-4)\}$
 $A \times A = \{(2,2), (2,-2), (2,3), (-2,2), (-2,-2), (-2,3), (3,2), (3,-2), (3,3)\}$
 $B \times A = \{(1,2), (1,-2), (1,3), (-4,2), (-4,-2), (-4,3)\}$
- (ii) $A \times B = \{(p,p)(p,q)(q,p)(q,q)\}$; $A \times A = \{(p,p), (p,q), (q,p), (q,q)\}$;
 $B \times A = \{(p,p), (p,q), (q,p), (q,q)\}$
- (iii) $A \times B = \{ \}$; $A \times A = \{(m,m), (m,n), (n,m), (n,n)\}$; $B \times A = \{ \}$
2. $A \times B = \{(1,2), (1,3), (1,5), (1,7), (2,2), (2,3), (2,5), (2,7), (3,2), (3,3), (3,5), (3,7)\}$
 $B \times A = \{(2,1), (2,2), (2,3), (3,1), (3,2), (3,3), (5,1), (5,2), (5,3), (7,1), (7,2), (7,3)\}$
3. $A = \{3,4\}$ $B = \{-2,0,3\}$ 5. true

Exercise 1.2

- 1.(i) Not a relation (ii) Not a relation (iii) Relation (iv) Not a relation
2. $\{1,2,3,4,5,6\}, \{1,4,9,16,25,36\}$ 3. $\{0,1,2,3,4,5\}, \{3,4,5,6,7,8\}$



(c) $\{(2,1), (4,2)\}$



(c) $\{(1,4), (2,5), (3,6), (4,7), (5,8), (6,9)\}$

5. $\{(10000, A_1), (10000, A_2), (10000, A_3), (10000, A_4), (10000, A_5), (25000, C_1), (25000, C_2), (25000, C_3), (25000, C_4), (50000, M_1), (50000, M_2), (50000, M_3), (100000, E_1), (100000, E_2)\}$

