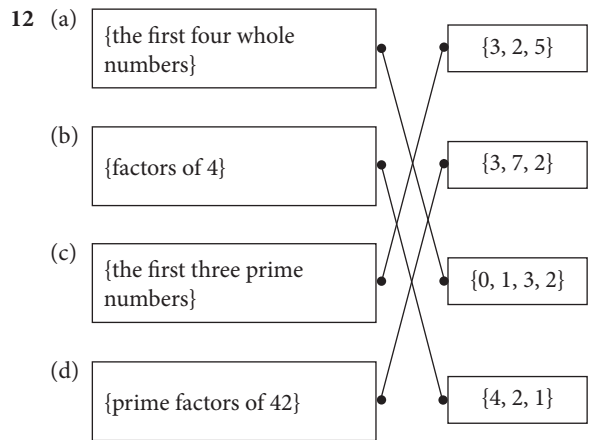


# Fully-workded Solutions

## Practice 11

### Formative Practice

- 1 A Correct  
B Wrong  
C Correct  
D Correct  
Answer: **B**
- 2 (a) Rice, Biscuits, Lime cake, Bread  
(b) Orange juice, Coffee, Milk, Sugar cane
- 3 (a) {2, 4, 6, 8, 10, 12, 14}  
(b)  $\{x : x < 15, x \text{ is a positive even integer}\}$   
(c) Set of positive even integers less than 15.
- 4 (a) A set of letters in the expression RUKUN NEGARA.  
(b) {A, E, G, K, N, R, U}  
(c)  $\{x : x \text{ is a letter in the expression RUKUN NEGARA}\}$
- 5 (a) False  
(b) True  
(c) False
- 6 (a) ✓ (b) ✗  
(c) ✗ (d) ✓
- 7 (a)  $\in$  (b)  $\notin$   
(c)  $\notin$  (d)  $\in$
- 8 (a) 7 (b) 0  
(c) 10 (d) 9
- 9 (a) {6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21}  
(b) 16
- 10  $P = \left\{ \frac{3}{28}, \frac{5}{28}, \frac{9}{28}, \frac{11}{28}, \frac{13}{28}, \frac{15}{28}, \frac{17}{28}, \frac{19}{28}, \frac{23}{28}, \frac{25}{28}, \frac{27}{28} \right\}$   
 $n(P) = 11$
- 11 (a)  $C = \{(1, 9), (2, 8), (3, 7), (4, 6), (5, 5), (6, 4), (7, 3), (8, 2), (9, 1)\}$   
(b)  $n(C) = 9$



13 (a) = (b)  $\neq$

- 14 (a) (i) (2, 3, 5, 7)  
(ii) {1, 3, 5, 7, 9}  
(b) No

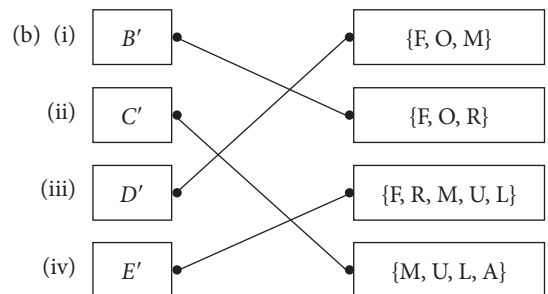
15  $P' = \{1, 2, 4, 6, 8, 9\}$

Answer: **B**

- 16 (a)  $\{x : x \text{ is a rational number}\}$   
(b) {Letters in the word HARMONI}  
(c) {3, 5, 7, 9, 11, 13}  
(d) {i, n, d, a, h}

- 17 (a) S  
(b) (i)  $P' = \{1, 2, 4, 5, 7, 8\}$   
(ii)  $Q' = \{2, 4, 6, 8\}$   
(iii)  $R' = \{1, 3, 5, 6, 7, 8, 9\}$

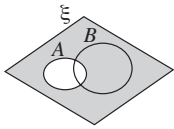
18 (a)  $A = \{F, O, R, M, U, L, A\}$



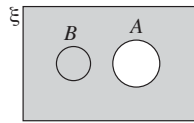
19  $\xi = \{9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19\}$

- (a)  $A' = \{9, 10, 12, 13, 14, 16, 18, 19\}$   
(b)  $B' = \{9, 11, 13, 15, 17, 19\}$

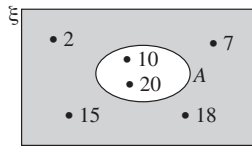
20 (a)



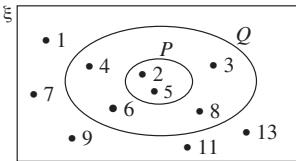
(b)



21



22 (a)



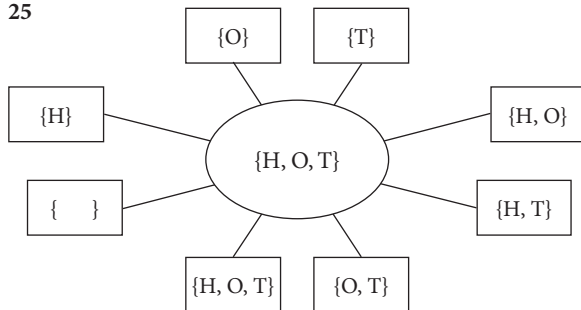
(b) (i)  $P' = \{1, 3, 4, 6, 7, 8, 9, 11, 13\}$

(ii)  $Q' = \{1, 7, 9, 11, 13\}$

23 (a)  $A \subset B$  (b)  $A \subset B$  (c)  $A \not\subset B$  (d)  $A \subset B$

24  $\{e, u\}, \{i\}, \phi, \{e, i, o, u\}$

25

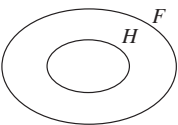


26 (a)  $2^4 = 16$

(b) (i)  $\{6, 1\}, \{6, 3\}, \{6, 8\}, \{1, 3\}, \{1, 8\}, \{3, 8\}$

(ii)  $\{6, 1, 3\}, \{6, 1, 8\}, \{6, 3, 8\}, \{1, 3, 8\}$

27 (a)



(b)



28 (a)  $R \not\subset Q$  [X]

(b)  $S \subset R$  [X]

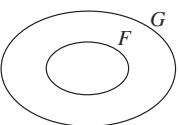
(c)  $Q \subset P$  [✓]

(d)  $P \not\subset S$  [✓]

29  $F = \{1, 2, 3, 4, 6, 8, 12, 24\}$

$G = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24\}$

(a)



(b)  $F \subset G$

### Summative Practice

1  $A : P \neq Q$

$B : P \neq Q$

$C : P = Q$

$D : P \neq Q$

Answer: C

2  $H = \{12, 21, 30, 102, 111, 120\}$

Answer: D

3  $\xi = \{0, 1, 2, 3, \dots, 99\}$

$M = \{20, 40, 60, 80\}$

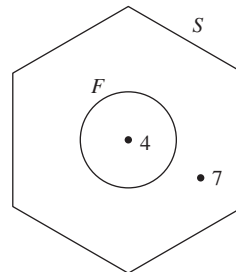
$n(\xi) = 100$

$n(M) = 4$

$n(M') = 100 - 4$   
 $= 96$

Answer: C

4



$S = \{4, 7\}$

Subsets of S are  $\{ \}, \{4\}, \{7\}, \{4, 7\}$ .

Answer: D

5 A Correct

B Correct

C Wrong

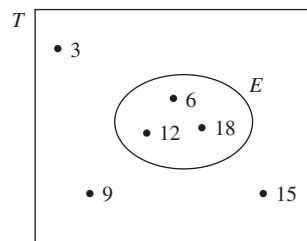
D Correct

Answer: C

6 (a)  $E = \{6, 12, 18\}$

$T = \{3, 6, 9, 12, 15, 18\}$

(b)



(c) Subsets of E are  $\{ \}, \{6\}, \{12\}, \{18\}, \{6, 12\}, \{6, 18\}, \{12, 18\}, \{6, 12, 18\}$ .

7 (a)  $\{17, 26, 35, 44, 53, 62\}$

(b) 6

8  $F = \{2, 3, 5, 8, 13, 21, 34\}, H = \{1, 8, 27, 64\}$

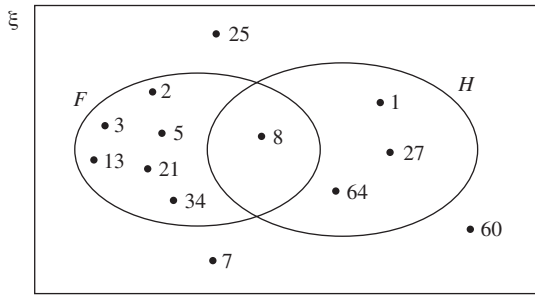
(a) (i)  $1 \notin F$

(ii)  $64 \in H$

(iii)  $\{5, 34\} \subset F$

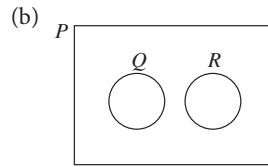
(iv)  $\{49, 81\} \not\subset H$

(b)



- (c)  $F' = \{1, 7, 25, 27, 60, 64\}$ ,  
 $H' = \{2, 3, 5, 7, 13, 21, 25, 34, 60\}$

- 9 (a) (i)  $Q$  (or  $R$ )  
(ii)  $Q$



- 10 (a)  $3 \in A$   
(b)  $\{2\} \subset A$   
(c)  $n(A) = 3$   
(d)  $A' = \{1\}$