

6.2 Answers to 6.1 Test

Answer 1

(i) $M = \{ 1, 2, 5, 10, 25, 50 \}$

(ii) $R = \{ 1, 3, 5, 9, 15, 45 \}$

(iii) $M \cap R = \{ 1, 5 \}$

[6 marks]

Answer 2

(i) $\cap$: “intersection”

(ii) $\emptyset$: “empty set”

(iii) $\in$: “is an element of”

[6 marks]

Answer 3

(i) A

(ii) B'

(iii) $A \cup B$

(iv) $(A \cup B)'$

(v) $A \cap B'$

(vi) $A \cap B$

Other equivalent answers are possible

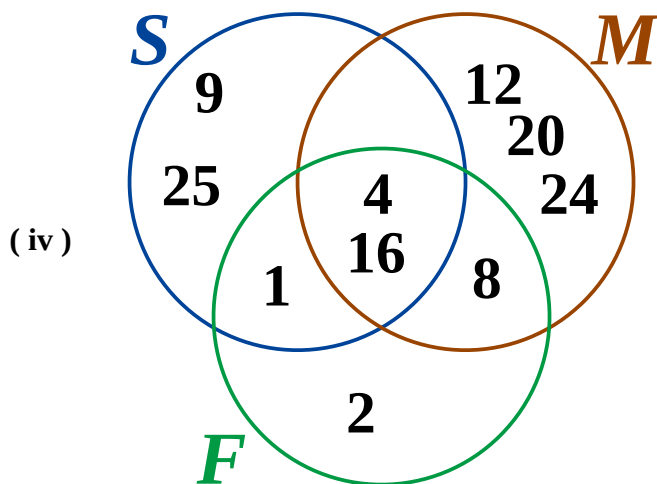
[12 marks]

Answer 4

(i) $S = \{ 1, 4, 9, 16, 25 \}$

(ii) $M = \{ 4, 8, 12, 16, 20, 24 \}$

(iii) $F = \{ 1, 2, 4, 8, 16 \}$



(v) $S \cap F = \{ 1, 4, 16 \}$

(vi) $S \cap M \cap F = \{ 4, 16 \}$

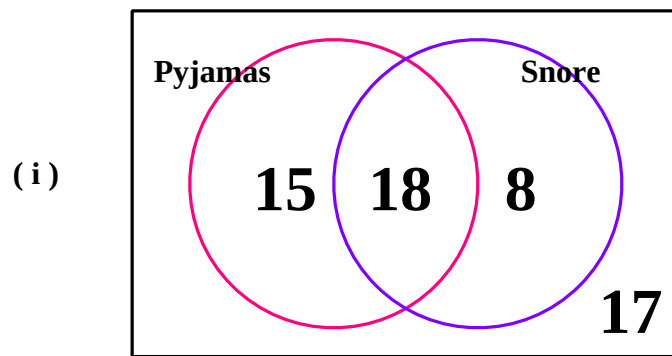
(vii) $F \cap M = \{ 4, 8, 16 \}$

(viii) $F \cap M \cap S' = \{ 8 \}$

(ix) $n(S \cup M) = 9$

[18 marks]

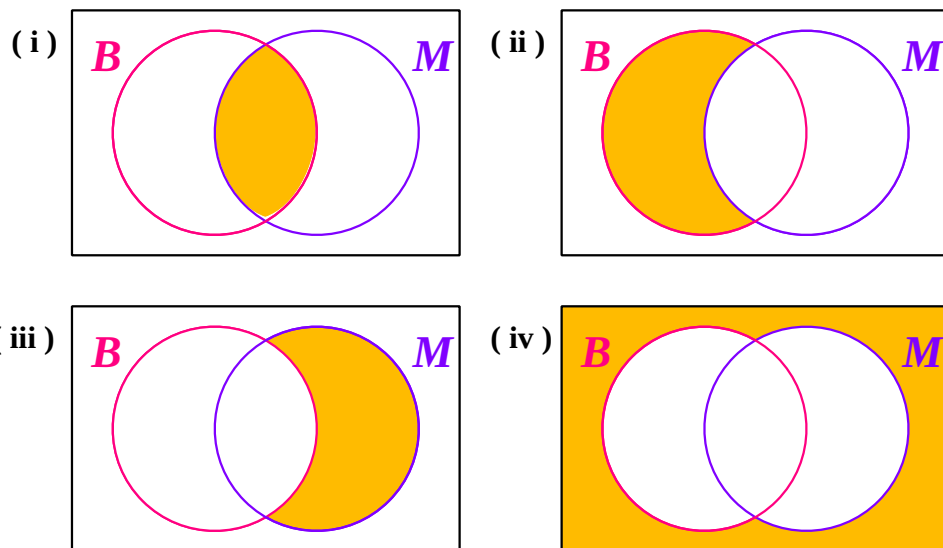
Answer 5



(ii) 17

[6 marks]

Answer 6



[8 marks]

Answer 7

$n\{\text{Names of months in a year}\} = 12$

[2 marks]

Answer 8

- (i) T
- (ii) F
- (iii) F
- (iv) F
- (v) F

[10 marks]

Answer 9

- (i) Flying pigs
- (ii) There are no flying pigs

[4 marks]

Answer 10

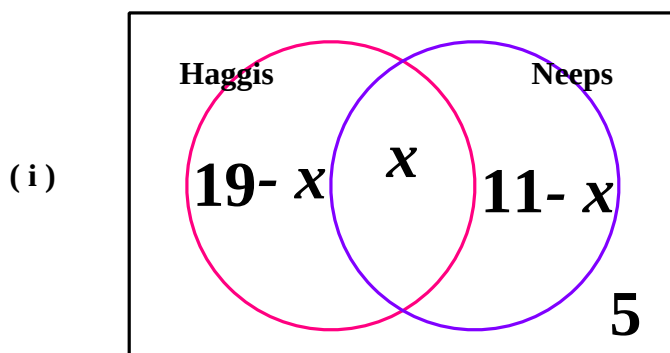
$E \cup O$ is all the positive integers

[2 marks]

Answer 11

- (i) $A \cup B = \{ 1, 4, 9, 16, 25, 36, 49, \dots \}$
 (ii) Square numbers
 (iii) $A \cap B = \emptyset$

[6 marks]

Answer 12

- (ii) Let x be the number of pupils who like both haggis and neeps.
 In which case,

$$(19 - x) + x + (11 - x) + 5 = 30$$

$$35 - x = 30$$

$$x = 5$$

[6 marks]

Answer 13

- (a) (i) $T = \{ 1, 3, 6, 10, 15, 21, 28, 36, \dots \}$
 (ii) $M = \{ 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, \dots \}$
- (b) (i) T (vi) F
 (ii) F (vii) T
 (iii) T (viii) F
 (iv) F (ix) T
 (v) T (x) F, most obviously because of the 3

[14 marks]