

5.2 Answers to 5.1 Revision

Answer 1

(i) $Q = \{ 1, 2, 3, 6, 9, 18 \}$

(ii) $R = \{ 1, 2, 3, 4, 6, 12 \}$

(iii) $Q \cap R = \{ 1, 2, 3, 6 \}$

[6 marks]

Answer 2

(i) $\emptyset$: “empty set”

(ii) $\notin$: “is not an element of”

(iii) $\cup$: “union”

[6 marks]

Answer 3

(i) B

(ii) $A \cap B$

(iii) $A \cup B$

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

(v) $A \cup A'$

(vi) $A \cap B'$

Other equivalent answers are possible

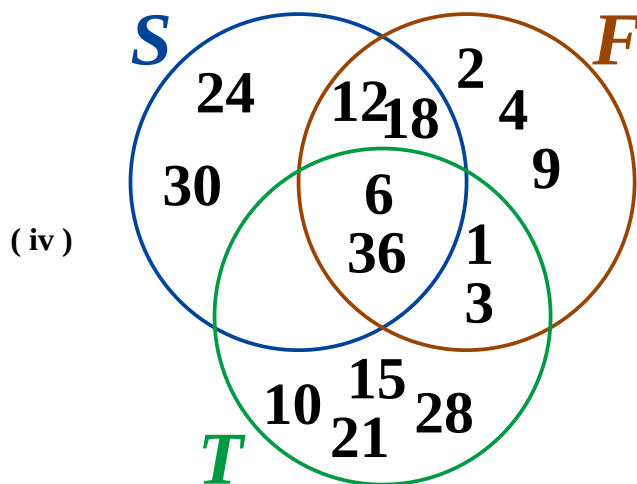
[12 marks]

Answer 4

(i) $S = \{ 6, 12, 18, 24, 30, 36 \}$

(ii) $F = \{ 1, 2, 3, 4, 6, 9, 12, 18, 36 \}$

(iii) $T = \{ 1, 3, 6, 10, 15, 21, 28, 36 \}$



(v) $S \cap F = \{ 6, 12, 18, 36 \}$

(vi) $S \cap F \cap T = \{ 6, 36 \}$

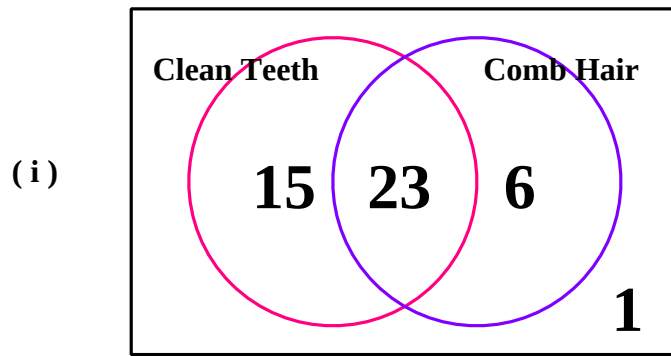
(vii) $S \cap F \cap T' = \{ 12, 18 \}$

(viii) $F \cap T' \cap S' = \{ 2, 4, 9 \}$

(ix) $n(S \cup F) = 11$

[18 marks]

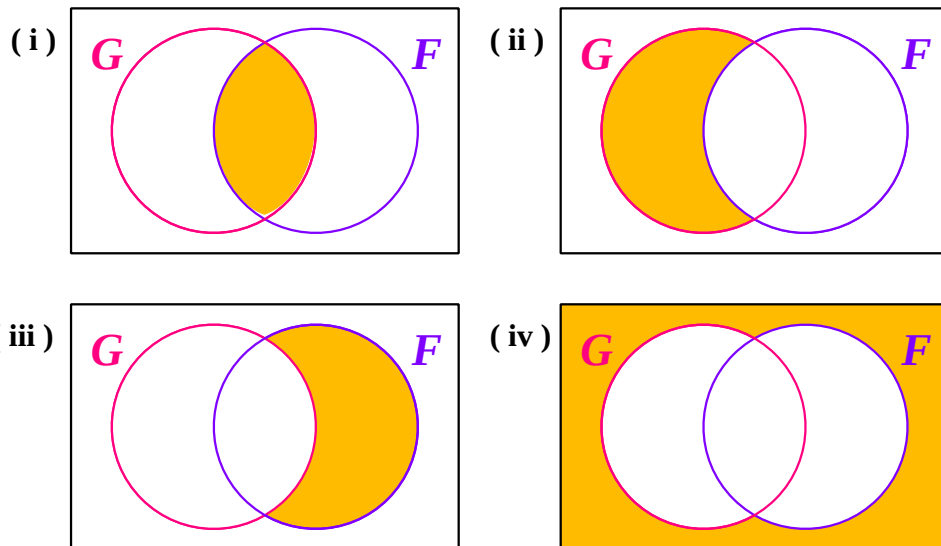
Answer 5



(ii) 1

[6 marks]

Answer 6



[8 marks]

Answer 7

$n\{\text{Names of seasons in a year}\} = 4$

[2 marks]

Answer 8

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

[10 marks]

Answer 9

- (i) Lead balloons
- (ii) There are no lead balloons

[4 marks]

Answer 10

$P \cup C$ is all integers ≥ 2

[2 marks]

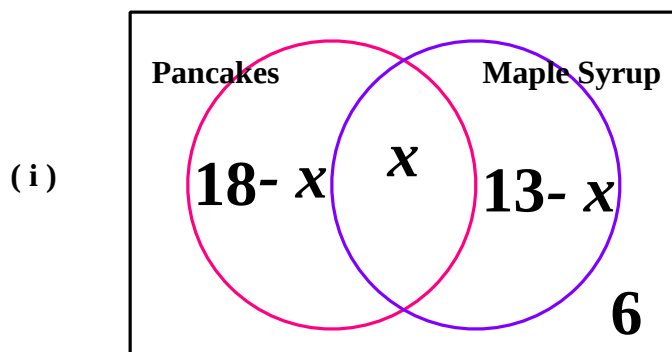
Answer 11

(i) $A \cup B = \{ 2, 4, 6, 8, 10, 12, 14, \dots \}$

(ii) The even numbers

(iii) $A \cap B = \emptyset$

[6 marks]

Answer 12

(ii) Let x be the number of pupils who like both pancakes and maple syrup.
In which case,

$$(18 - x) + x + (13 - x) + 6 = 30$$

$$37 - x = 30$$

$$x = 7$$

[6 marks]

Answer 13

(a) (i) $S = \{ 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, \dots \}$

(ii) $F =$ Powers of 4. i.e. 4^x for $x = 0, 1, 2, 3, 4$

(b)	(i)	T	(vi)	T
	(ii)	F	(vii)	T
	(iii)	T	(viii)	T
	(iv)	F	(ix)	T
	(v)	T	(x)	T

[14 marks]