

8.2 Answers

Answer 1

(i) $S = \{ \text{Types of Tea} \}$

[1 mark]

(ii) $R = \{ \text{Spades, Clubs, Hearts, Diamonds} \}$

[1 mark]

(iii) $O = \{ 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, \dots \}$

[1 mark]

(iv) $M = \{ \text{Multiples of 6} \}$

[1 mark]

Answer 2

(i) F

(vi) F

(ii) T

(vii) T

(iii) F

(viii) F

(iv) F

(ix) T

(v) T

(x) F

[10 marks]

Answer 3

(i) T

(vi) F

(ii) T

(vii) T

(iii) F

(viii) T

(iv) F

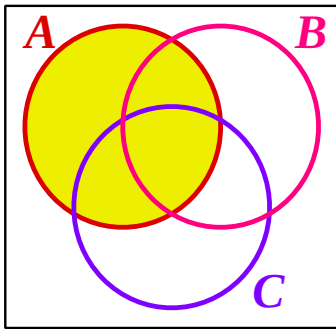
(ix) T

(v) F

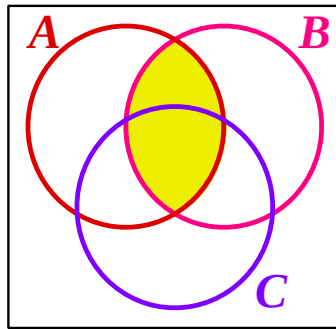
(x) T

[10 marks]

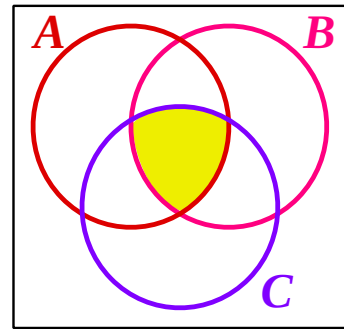
Answer 4



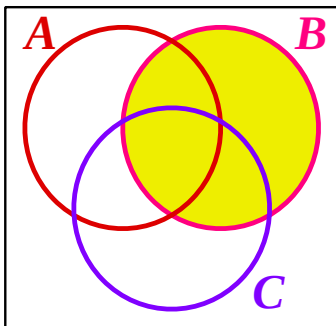
Shade : A



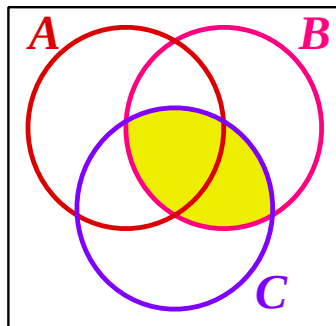
Shade : $A \cap B$



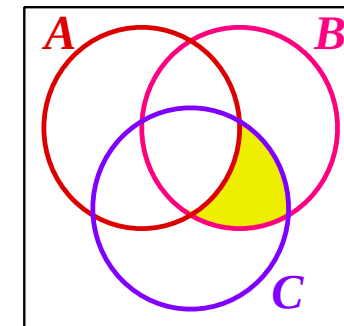
Shade : $A \cap B \cap C$



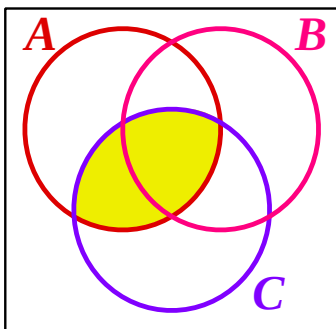
Shade : B



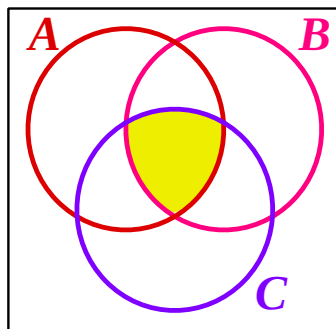
Shade : $B \cap C$



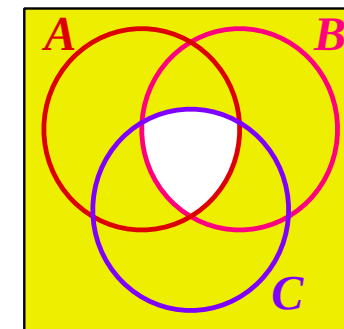
Shade : $B \cap C \cap A'$



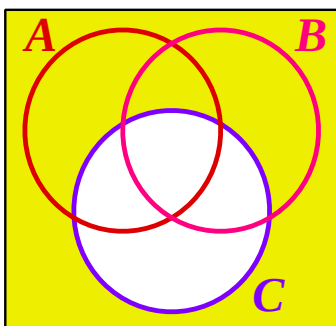
Shade : $A \cap C$



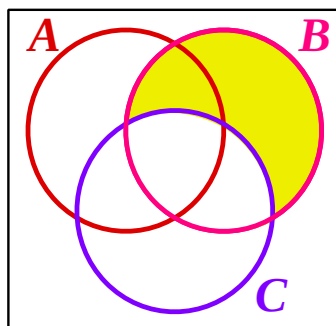
Shade : $A \cap C \cap B$



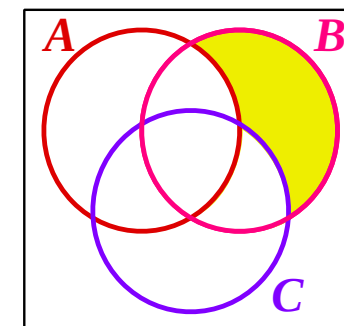
Shade : $(A \cap C \cap B)'$



Shade : C'



Shade : $C' \cap B$



Shade : $C' \cap B \cap A'$

[12 marks]

Answer 5

(a) (i) $F = \{ 1, 2, 3, 6 \}$

[1 mark]

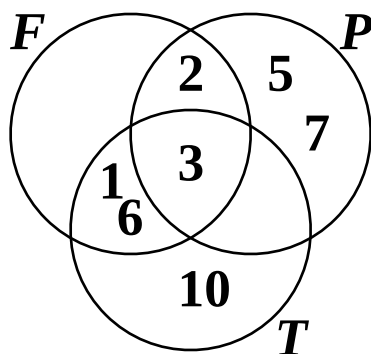
(ii) $P = \{ 2, 3, 5, 7 \}$

[1 mark]

(iii) $T = \{ 1, 3, 6, 10 \}$

[1 mark]

(b)



[5 marks]

(c) (i) $F \cap P = \{ 2, 3 \}$

[1 mark]

(ii) $F \cap T = \{ 1, 3, 6 \}$

[1 mark]

(iii) $P \cap T = \{ 3 \}$

[1 mark]

(iv) $F \cap P \cap T = \{ 3 \}$

[1 mark]

(v) $F \cap P \cap T' = \{ 2 \}$

[1 mark]

(vi) $F \cap P' \cap T = \{ 1, 6 \}$

[1 mark]

(vii) $F' \cap P \cap T = \emptyset$ is observing a region that contains no elements on the Venn Diagram

[1 mark]

Answer 6

(i) 256

(ii) 63

(iii) 150

(iv) 106

(v) 118

[5 marks]

Answer 7

Odd number that are not prime, less than 30

$$O \cap P' = \{ 1, 9, 15, 21, 25, 27 \}$$

[2 marks]

Answer 8

(i) A

(ii) $A \cap B$

(iii) B'

(iv) $A \cap B'$

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

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

[6 marks]

Answer 9

$$A \cap B = \emptyset$$

[2 marks]

Answer 10

(i) $B = \{ 3^1, 3^2, 3^3, 3^4, \dots \}$

[2 marks]

(ii) No! $C \not\subset (A \cap B)$

[2 marks]