

Boolean Exercise Set 2 [ANS]

1. $(A \wedge B \wedge \sim C) \vee (A \wedge B \wedge C) \vee (A \wedge \sim B)$

ANS: A

2. $(\sim A \wedge B) \vee (A \wedge B \wedge \sim C) \vee (A \wedge B) \vee C$

ANS: $B \vee C$

3. $(\sim A \wedge B) \vee (\sim A \wedge B \wedge C) \vee (\sim A \wedge \sim B \wedge \sim C) \vee (A \wedge \sim B \wedge \sim C)$

ANS: $(\sim A \wedge B) \vee (\sim B \wedge \sim C)$

4. $(B \wedge C \wedge (\sim C \vee D)) \vee (C \wedge D) \vee C \vee \sim A$

ANS: $C \vee \sim A$

5. $(A \wedge B) \vee B$

ANS: B

6. $C \wedge (A \vee \sim C)$

ANS: $C \wedge A$

7. $(A \wedge B \wedge \sim C) \vee (A \wedge \sim C) \vee (\sim A \wedge \sim C \wedge D) \vee (\sim A \wedge C \wedge \sim D)$

ANS: $\sim C$

8. $(A \wedge C \wedge (\sim B \vee C)) \vee (B \wedge C) \vee B$

ANS: $(A \wedge C) \vee B$

9. $(B \wedge (A \vee \sim C)) \vee A \vee (A \wedge (\sim A \vee B))$

ANS: $A \vee (B \wedge \sim C)$

10. $(A \wedge B \wedge \sim C) \vee (B \wedge C) \vee (\sim A \wedge B \wedge \sim C) \vee (A \wedge B \wedge \sim B)$

ANS: B

11. $(A \wedge B \wedge C) \vee (\sim A \wedge C) \vee (C \wedge (D \vee \sim C)) \vee A$

ANS: $A \vee C$

12. $\sim(\sim(A \vee \sim B) \wedge \sim(\sim C \vee D))$

ANS: $A \vee \sim B \vee \sim C \vee D$

13. $\sim(\sim(\sim(A \wedge \sim(C)) \wedge \sim B) \wedge D) \vee \sim(\sim C \wedge D)$

ANS: $A \vee B \vee C \vee \sim D$

14. $\sim(A \vee B) \vee \sim A \wedge (C \vee B)$

ANS: $\sim A$

15. $(A \wedge B \wedge C) \vee (B \wedge C \wedge D) \vee (B \wedge C \wedge \sim D) \vee (B \wedge \sim C \wedge D) \vee (A \wedge B \wedge \sim C) \vee (\sim A \wedge B \wedge \sim C)$

ANS: B

16. $(A \wedge B \wedge C \wedge D) \vee (A \wedge B \wedge D) \vee (A \wedge \sim B \wedge D) \vee (A \wedge \sim B \wedge D) \vee (A \wedge \sim B \wedge C \wedge D) \vee (A \wedge C \wedge D) \vee (\sim A \wedge C \wedge D)$

ANS: $(A \wedge D) \vee (C \wedge D)$

17. Show that $A \wedge \sim B \vee \sim(A \wedge B) \vee \sim(A \wedge \sim B) = \sim A$