

Assignment 1

No. _____

Date . . .

1. Ans: (a) (d) (e) (f) are statements.
(b) (c) (g) are not statements.

2. Ans: (a) $\neg R$
(b) $X \wedge \neg Y$
(c) $X \vee R$
(d) $R \wedge (X \vee Y)$
(e) $(R \wedge X) \vee Y$
(f) $\neg (Y \vee X)$
(g) $(\neg Y) \vee x$
(h) $(Y \wedge x) \vee (Y \wedge R)$

3. Ans: (a) $F \rightarrow G$
(b) $E \rightarrow (G \vee F)$
(c) $(E \rightarrow G) \vee F$
(d) $\neg G \leftrightarrow \neg$
(e) $(E \rightarrow F) \wedge (F \rightarrow \neg G)$
(f) $G \leftrightarrow (G \wedge F)$

4. Ans: (a) neither

(b) tautology

(c) contradiction

(d) neither

(e) tautology

(f) neither

(g) contradiction

5. Ans: (a) $P \wedge Q$

(b) $\neg A \vee B$

(c) True

(d) False

(e) $\neg p \vee Q$

(f) $X \vee Y$

6. Ans: (a) Everyone has green hair.

(b) There is a people who likes pickles

(c) Everyone has a pet frog and likes pickles.

(d) If ~~there is~~ ^{there is} a ^{who} people has green hair, ^{then} he/she has a pet frog.

(e) Everyone has a pet frog if and only if he/she doesn't like pickles.