

1.

- a) Yes
- b) Yes
- c) Yes
- d) Yes
- e) No
- f) No
- g) Yes
- h) No

2.

$$(P \wedge \neg Q) \vee (\neg P \wedge Q)$$

3.

- a)  $(\neg P \wedge R) \Rightarrow Q$
- b)  $R \Rightarrow Q$
- c)  $P \Rightarrow \neg Q$
- d)  $((P \wedge \neg Q) \wedge \neg R) \vee ((\neg P \wedge Q) \wedge R)$
- e) The semi-finals are on Saturday or Walter will bowl in the semi-finals
- f) If Walter bowls in the semi-finals then the semi-finals are on Saturday
- g) The semi-finals are not on Saturday and Walter will not bowl in the semi-finals