Section 1.5: Introduction to Logic

Exercise Answers

1. Yes

2. No

3. No

4. No

5. No

6. Yes

7. $p \vee p$

8. From the context, you could go with either $\bar{p} \vee \bar{q}$ or $\bar{p} \oplus \bar{q}$.

9. $\overline{p \vee q}$

10. $p \wedge q$

11. $p \oplus \bar{q}$

12. exclusive (you usually don't sit both inside and outside at the same time)

13. inclusive (you could have seen both)

14. exclusive (you can only get one mark for the course, so it's one or the other but can't be both)

15. exclusive (it can't both be the correct answer and not the correct answer at the same time)

16. inclusive (it's possible that someone speaks both languages)

17. $p \vee (p \wedge q)$

18. $q \wedge (q \vee p)$

19. $(q \wedge \bar{p}) \vee p$

20. $q \wedge (p \vee \bar{q})$

21. Jane did her homework and went for a jog.

22. It is not true that Jane both did her homework and went for a jog.

23. Jane went for a jog and Jane did not do her homework.

24. Jane did not go for a jog or she didn't do her homework.

25. It is not true that Jane didn't do her homework.

26. Either Jane went for a jog or she didn't, but not both.

27. No. (They could just be even, not owing each other anything.)

28. No. (What if there were exactly 25 students in the class?)

29. No. (Maybe Pat is in that nice, comfortable region called the middle class?)

30. Yes.

31. Not enough info. Depends on whether she went for a jog. If she did go for a jog, she could have not done her homework. But if she didn't go for a jog, she must have done her homework for sure.

32. Not enough info. Depends on whether she did her homework.

33. No.