COM101 lab 4/5 solutions

8. By drawing up an appropriate truth table show that not (P or Q) is logically equivalent to (not P) and (not Q).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| P | Q | Not(P) | Not(q) | Not(PorQ) | Not(P) and Not(Q) |
| T | T | F | F | F | F |
| T | F | F | T | F | F |
| F | T | T | F | F | F |
| F | F | T | T | T | T |

9. What is the truth value of the proposition **(not(X and Y) or Z) and (not (Q and P))**? Where

P = Ballymena is in County Down, F

Q = Light from the sun reaches earth in less than 10 minutes, T

X = The UU has a campus at Belfast, T

Y = Stephen Hawking is dead, T

Z = It is the year 2020. T

(Not(T or T) or T)and(not(F and T))

=(ForT)and(T)

=T and T

T

Check your answer using Python.