**4.3**

#2 $(A \lor B) \lor (A \land \neg B)$

If $a = a$, this is logically true

#3 $(A \lor B) \lor \neg(A \lor (B \land C)$

If $a \neq a$, this is logically false

**4.19**

If two sentences are tautologically equivalent, they are logically equivalent.
Thus, $A \lor (B \land C)$ is logically equivalent to $(A \land C) \lor (A \land B)$, and not just taut equivalent. Tautological consequence is logical consequence. So now we know that A and $B \lor \neg A$ logically imply $A \land B$.
However, logical consequence does not equal tautological consequence
$a = b$ is a logical consequence of $b = a$, but not a.
Likewise, Tautological equivalence implies TW equivalence, but not vice versa.
[Cube(b) ∧ ( LeftOf(a, b) ∨ RightOf(a, b) ) ] ∧ [Dodec(c) ∧ FrontOf (a, c)] may be TW equivalent but not Tautologically equivalent or logically equivalent.