Homework 3

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Problem 1. *Give the complete truth table for the sentence* $\neg\neg p$.

Problem 2. *Give the complete truth table for the sentence* $((p \vee \neg p) \leftrightarrow (p \wedge \neg p))$.

Problem 3. *Give the complete truth table for the sentence* $p \rightarrow (p \rightarrow (\neg q \vee \neg p))$.

Problem 4. *Give the complete truth table for the sentence* $(r \wedge p) \leftrightarrow (p \vee \neg r)$.

Problem 5. *Give the complete truth table for the sentence* $(p \vee \neg p) \wedge (q \leftrightarrow r)$.

Problem 6. *Is the argument below valid? Explain your answer by constructing a truth table for the argument.*

1. $\neg p$
2. $p \rightarrow q$
3. $\neg p$

Problem 7. *Is the argument below valid? Explain your answer by constructing a truth table for the argument.*

1. p
2. q
3. $p \wedge q$

Problem 8. *Is the argument below valid? Explain your answer by constructing a truth table for the argument.*

1. p
2. $p \wedge q$

Problem 9. *Is the argument below valid? Explain your answer by constructing a truth table for the argument.*

1. p
2. q
3. $\neg q \vee r$
4. $p \wedge r$

Problem 10. *Is the argument below valid? Explain your answer by constructing a truth table for the argument.*

1. q
2. $s \rightarrow \neg p$
3. $\neg p \rightarrow \neg q$
4. $\neg s$