1. **(4 points total)** Perform a formal proof (as we learned in class, using the Rules of Inference on the front of this sheet) that if $H_1 = \neg p \vee r$, $H_2 = \neg q \vee r$, and $H_3 = p \vee q$, then $H_1 \wedge H_2 \wedge H_3 \to r$

1.	$\neg p \vee r$	H_1
2.	$\neg q \vee r$	H_2
3.	$p \vee q$	H_3
4.	$q \vee r$	resolution 1,3
5.	$r \vee r$	resolution 2,4
6.	r	logical equivalency

2. **(6 points total)** Perform a formal proof (as we learned in class, using the Rules of Inference on the front of this sheet) that if $H_1 = (d \vee s) \to p$, $H_2 = c \to \neg p$, $H_3 = \neg c \to e$, and $H_4 = \neg e$ then $H_1 \wedge H_2 \wedge H_3 \wedge H_4 \to \neg d$

1.	$(d \vee s) \to p$	H_1
2.	$c \to \neg p$	H_2
3.	$\neg c \to e$	H_3
4.	$\neg e$	H_4
5.	c	modus tollens 3,4
6.	$\neg p$	modus ponens 2,5
7.	$\neg(d \vee s)$	modus tollens 1,6
8.	$\neg d \wedge \neg s$	logically equivalent 7
9.	$\neg d$	simplification 8