

Solution Practice Test 5: Beginning Sentential Logic

Fill in the correct formula or justification wherever a ____ occurs.

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|----|--|-----------------------|
| 1. | $(p \ \& \ q) \rightarrow s$ | A |
| 2. | $r \rightarrow \neg s$ | A |
| 3. | Show $(q \ \& \ p) \rightarrow \neg r$ | |
| 4. | $(q \ \& \ p)$ | ACP |
| 5. | Show $\neg r$ | |
| 6. | r | AIP |
| 7. | $\neg s$ | $\rightarrow E, 2, 6$ |
| 8. | s | $\rightarrow E, 1, 4$ |

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|-----|------------------------------|-----------------------|
| 1. | $p \rightarrow s$ | A |
| 2. | $\neg(p \rightarrow r)$ | A |
| 3. | Show $\neg(s \rightarrow r)$ | |
| 4. | $(s \rightarrow r)$ | AIP |
| 5. | Show $(p \rightarrow r)$ | |
| 6. | p | ACP |
| 7. | s | $\rightarrow E, 1, 6$ |
| 8. | r | $\rightarrow E, 4, 7$ |
| 9. | $\neg(p \rightarrow r)$ | R, 2 |
| 10. | $(p \rightarrow r)$ | R, 5 |

Complete the following proof:

1.	$(p \ \& \ q) \rightarrow (r \rightarrow \neg s)$	A
2.	$(\neg \neg p \ \& \ t)$	A
3.	$(t \rightarrow q)$	A
4.	Show $s \rightarrow \neg r$	
5.	s	ACP
6.	Show $\neg r$	
7.	r	AIP
8.	$\neg \neg p$	&E, 2
9.	p	$\neg \neg$, 8
10.	t	&E, 2
11.	q	$\rightarrow$ E, 3,10
12.	$(p \ \& \ q)$	&I, 9,11
13.	$(r \rightarrow \neg s)$	$\rightarrow$ E, 1,12
14.	$\neg s$	$\rightarrow$ E, 7,13
15.	s	R, 5