

# Truth Table – Extra Guided Practice

**Example:** a truth table for compound proposition  $(p \wedge q) \rightarrow (\neg r \vee q)$  is

p	q	r	$p \wedge q$	$\neg r$	$\neg r \vee q$	$(p \wedge q) \rightarrow (\neg r \vee q)$

p	$\neg p$
T	F
F	T

p	q	$p \wedge q$
T	T	T
T	F	F
F	T	F
F	F	F

p	q	$p \vee q$
T	T	T
T	F	T
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p	q	$p \rightarrow q$
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**Example 2:** translate a given sentence into a logical expression; determine whether an inclusive( $\vee$ ) or exclusive( $\oplus$ ) **or** is intended.

a) “To take discrete math, you must have taken calculus or a course in computer science”

b) “When you buy a new car from company A, you can get \$2000 cash back or a 2% car loan”

**Example 2:** translate a given sentence into a logical expression; determine whether an inclusive( $\vee$ ) or exclusive( $\oplus$ ) **or** is intended.

a) “To take discrete math, you must have taken calculus or a course in computer science”

p: “you can take discrete math”

q: “you took calculus”

r: “you took a course in computer science”

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*Note that during translation we may make a set of reasonable assumptions based on the intended meaning of the sentence.*