CPSC 322: Introduction to Artificial Intelligence (Section 2)
Uncertainty: Introduction to Probability
Do this exercise in pairs. If there's an odd number, do it in a group of 3.
<u>**Submit**</u> the sheet before leaving.

Name of Student (last, first)	Student Number

Consider the joint probability distribution table below.

World	Cavity	Toothache	Catch	$\mu(w)$
w_1	T	T	T	0.108
w_2	T	T	F	0.012
w_3	T	F	T	0.072
w_4	T	F	F	0.008
w_5	F	T	T	0.016
w_6	F	T	F	0.064
w_7	F	F	T	0.144
w_8	F	F	F	0.576

Question1: List all worlds w such that $w \models Catch = T$

Question 2: What's the probability of the following proposition g?

$g : Cavity = T \wedge Toothache = F$

Cavity	Toothache	Catch	μ(w)	μₑ(w)
T	T	T	0.108	
T	T	F	0.012	
T	F	T	0.072	
T	F	F	0.008	
F	T	T	0.016	
F	T	F	0.064	
F	F	T	0.144	
F	F	F	0.576	

Question 3: Compute the marginal probability distribution for P(Cavity).

Question 4: Given $e = (Cavity = T)$, what is the conditional probability

$P(Toothache = T \mid Cavity = T)$? Show μ_e(w) for each row in the table above.