Warm Up

1.

In a class of 40 students, 19 play tennis, 20 play netball and 8 play neither of these sports. A student is randomly chosen from the class. Determine the probability that the student:

a plays tennis
b does not play netball
c plays at least one of the sports
d plays one and only one of the sports
e plays netball, but not tennis
f plays tennis knowing he/she plays netball.

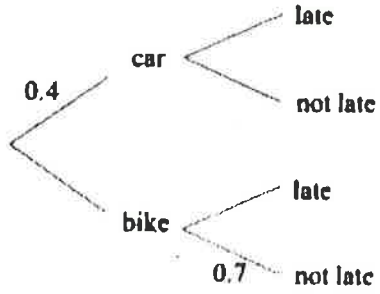
2.

Jason takes the car to school two days a week and the other days he rides his bike. If he has the car the chance that he is late is 10% but if he rides it is 30%.

a Copy and complete the tree diagram.

b What is the probability that on a randomly selected day Jason was:

i riding and not late ii late?



The probabilities of every branch add up to ____ or ____

Classwork - Tree Diagrams

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Tree Diagrams

Independent events

The following problems involve independent events where the probability of the second event is not affected by the outcome of the first.

Question 1

The probability of it snowing on a given day in a given ski station is said to be 0.3. You are going for the weekend, Saturday and Sunday and curious to know the chances of getting snow at some point.

a) Draw a tree diagram to show all the possible outcomes for snow over the two day period (Hint, let event 1 be Saturday – snow or no snow, event 2 is Sunday). Label the branches of the tree diagram.

b) Complete the table showing the following probabilities;

Probability	Working	answer
Snow both days		
Snow on Sat, but not on Sunday		
No snow on Saturday, but snow on Sunday		
No snow on either day		
Snow on only one day		
Snow on at least one day		
Snow on Saturday		

Question 2

In a game, you roll two dice numbered from 1 to 8. To win you must get at least one 7 or 8.

a) Draw a tree diagram to show all the possible outcomes for the dice over the two day period (Hint, event 1 is dice 1 – 7/8 or no 7/8, event 2 is dice 2). Label the branches of the tree diagram.

b) Complete the table showing the following probabilities;

Probability	Working	answer
Winning number on both dice		
Winning number on 1st dice, but not on 2nd		
Winning number on 2nd dice, but not on 1st		
Losing the game		
Winning the game		

Question 5

The probability of you passing your test on probability is dependent on whether or not you studied for it. Of course, you are a busy student, so the probability of you having time to study is only 0.7. If you studied, the probability of passing is 0.8. If you didn't, the probability drops to 0.4.

a) Draw a tree diagram to show the possible outcomes from this situation. Label the branches with the probabilities.

b) Complete the table showing the following probabilities;

Probability	Working	answer
You study and pass the test		
You don't study and fail the test		
You study but fail the test		
You don't study, but pass the test		
You pass the test one way or another		
You fail the test		