## MATH 101 QUIZ #4 (Spring 2021)

**1a** A customer is going to buy a new Blu-ray player, a new receiver, and a new speaker system. The choices of Blu-ray player are: LG, Toshiba, Sony, Insignia; the receiver choices are: Yamaha (Y), Onkyo (O), Pioneer (P); the speaker system choices are: Bose (B), JBL (J). What's the number of sample points in the sample space? (4)(3)(2)=24.

**1b** Make a tree diagram that illustrates the sample space.



**1c** Find the probability of selecting a Sony player.  $\frac{6}{24} = \frac{1}{4}$ 



**2a** One card is randomly selected from a standard 52-card deck. Find the probability of getting an ace.  $\frac{4}{52} = \frac{1}{13}$ 

**2b** One card is randomly selected from a standard 52-card deck. Find the probability of getting a red card or a card less than 5 (note an ace has rank 1).  $\frac{26}{52} + \frac{16}{52} - \frac{8}{52} = \frac{34}{52} = \frac{17}{26}$ 

3	A sample of lightbulbs is inspected, and some bulbs are found to be good while others were
fou	ind to be bad. Results are as follows:

WATTAGE	Good	Bad	Total
20	80	15	95
50	100	5	105
100	120	10	130
Total	300	30	330

If one of the bulbs is chosen at random, find the probability that...

- (a) The bulb is bad, given that it is 20 W.  $\frac{15}{95} = \frac{3}{19}$
- (b) The bulb is 100 W, given that it is good.  $\frac{120}{300} = \frac{2}{5}$
- (c) The bulb is good, given that it is not 50 W.  $\frac{80+120}{95+130} = \frac{200}{225} = \frac{8}{9}$