

Take your time and make sure you follow all instructions. Where necessary, work must be shown in order to receive partial credit. Include input into the calculator in order to receive partial credit.

1. Which of the following probability assignments are possible for the distribution of students at a university? If an assignment is not possible give a reason why it is not. [6 pts]

	Fresh.	Soph.	Junior	Senior
a)	0.35	0.30	0.30	0.25
b)	0.80	0.10	0.05	0.05
c)	0	0.5	0.5	0
d)	0.25	0.5	-0.25	0.5

2. A computer repair shop has payments based on a tiered scale. The probability model below gives the amount of payment for each tier and the probability of each payment. [14 pts]

Payment	\$100	\$200	\$300	\$400	\$500
Probability	0.24	0.35	0.22	0.13	?

- a) What is the expected amount of payment for the average repair?

- b) What is the average repair bill if the repair shop decides to start charging everyone a \$25 fee for initial consultation?

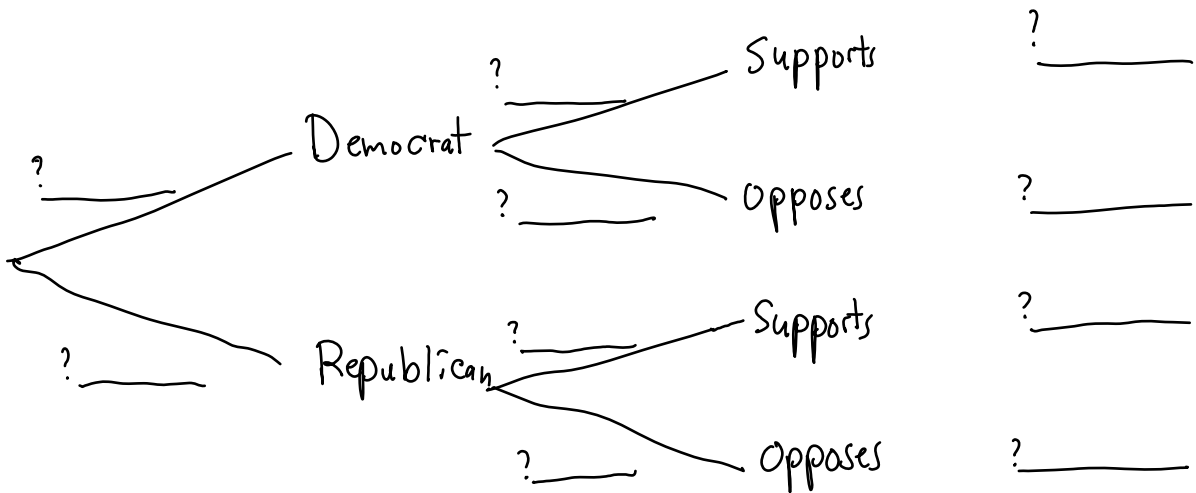
4. An automotive survey determines that 65% of US families own vehicles from US automakers, 53% own vehicles from foreign automakers, while 32% own vehicles from both US and foreign automakers.

a) Are owning a vehicle from a US automaker and a foreign automaker disjoint? Explain. [5 pts]

b) What is the probability a randomly selected US family owns either a vehicle from a US automaker or one from a foreign automaker? [9 pts]

5. In a community 65% of the registered voters are Democrats and the rest are Republican. A candidate for mayor of the community is getting support from 40% of the Democrats and 80% of the Republicans. [10 pts]

a) Finish the following tree by filling in all of the blank probabilities.



b) What is the probability a random voter supports the candidate? [4 pts]

c) If a random voter supports the candidate, what is the probability the voter is a Republican? [5 pts]

