Problem Set #2 - Probability
Review

Problem Set #2 - Probability

The following problems will cover material discussed in Week 2. You must answer each question correctly to earn credit on the question. You have three attempts per question.

If not specified in a particular question, please round your numerical answers to three decimal places.

Question 1
Review

Fill in the Blanks

Type your answers in all of the blanks and submit

X_2 X^2 Ω

The set of all possible outcomes in an experiment is described by the

Write your response here... .

The Write your response here... of two events A and B is the event in which both A and B occur.

Two events are said to be Write your response here... if they cannot occur at the same time.

The Write your response here... of two events A and B is the event in which either A or B or both occur.

Two events are said to be Write your response here... if the occurrence of one does not influence the probability of the occurrence of the other.

Correct Answers:

The set of all possible outcomes in an experiment is described by the

- ✓ sample space

.... The

- ✓ intersection

...of two events A and B is the event in which both A and B occur. Two events are said to be

- ✓ disjoint
- ✓ mutually exclusive

...if they cannot occur at the same time. The

- ✓ union

...of two events A and B is the event in which either A or B or both occur. Two events are said to be

✓ independent

Show Submitted Answer | Hide Correct Answer | Check My Answer

Question 2
Review

Fill in the Blanks

Type your answers in all of the blanks and submit

X_2 X^2 Ω

Round all answers to three decimal places.

In a class of 140 students, 32 are computer science majors, 49 are mechanical engineering majors, 12 are civil engineers and the rest are general engineering majors. Assume students can only have one major.

If a student is chosen at random what is the probability they are:

a civil engineering major? Type your answer here

a civil engineering major or a mechanical engineering major? Type your answer here

a general engineering major? Type your answer here

Suppose five students from the class are chosen at random. What is the probability that none are mechanical engineering majors? Type your answer here

Correct Answers:

Round all answers to three decimal places. In a class of 140 students, 32 are computer science majors, 49 are

mechanical engineering majors, 12 are civil engineers and the rest are general engineering majors. Assume students can only have one major. If a student is chosen at random what is the probability they are: a civil engineering major?

✓ 0.086

...a civil engineering major or a mechanical engineering major?

✓ 0.436

...a general engineering major?

✓ 0.336

...Suppose five students from the class are chosen at random. What is the probability that none are mechanical engineering majors?

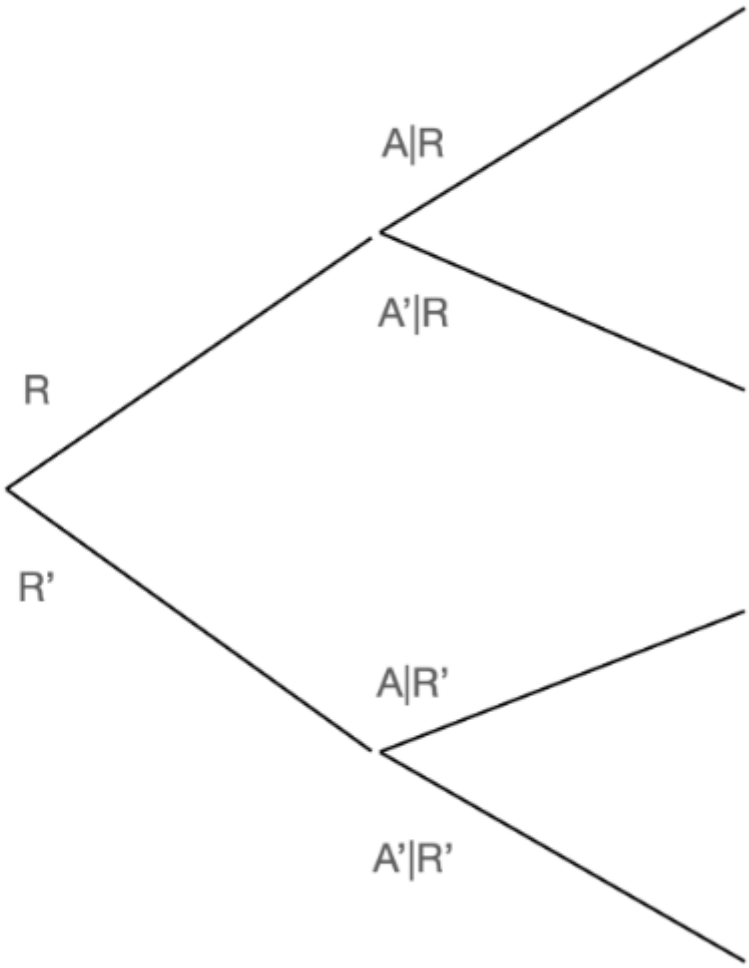
✓ 0.1115

Show Submitted Answer | Hide Correct Answer | Check My Answer

Use the following information for the next two questions.

A professor has noticed that students that attend class regularly, miss no more than two classes per term, generally get better grades. For the class, the overall percent of students who attend regularly is 69%. Of those who come to class on a regular basis, 36% receive A's. Of those who don't attend regularly, only 4% get A's.

Draw a tree diagram like the one in the image, where R = "attends class regularly", R' = "does not attend class regularly", A = "earned an A", and A' = "did not earn an A".



Question 3
Review

Based on your tree diagram match each probability to the correct value.

Drag and drop options on the right-hand side and submit. For keyboard navigation... SHOW MORE

P(R)	≡	0.69
P(R')	≡	0.31
P(A|R)	≡	0.36
P(A'|R)	≡	0.64

P(A|R')	=	0.04	
P(A'|R')	=	0.96	

Correct Answers:

P(R)	✓ 0.69
P(R')	✓ 0.31
P(A|R)	✓ 0.36
P(A'|R)	✓ 0.64
P(A|R')	✓ 0.04
P(A'|R')	✓ 0.96

Show Submitted Answer | Hide Correct Answer | Check My Answer

Question 4
Review

Fill in the Blanks

Type your answers in all of the blanks and submit

X_2 X^2 Ω

Among all students, what proportion earn an A **and** don't attend class regularly?

Type your answer here

Round to four decimal places.

What is the chance a randomly chosen student will earn an A in the class?

Type your answer here

Hint: Use the law of total probability. Round to four decimal places.

Given a student earned an A, what is the chance they attend class regularly?

Type your answer here

Hint: P(R|A) Round to four decimal places.

Correct Answers:

Among all students, what proportion earn an A **and** don't attend class regularly?

✓ 0.012

...Round to four decimal places. What is the chance a randomly chosen student will earn an A in the class?

✓ 0.261

...*Hint: Use the law of total probability.* Round to four decimal places. Given a student earned an A, what is the chance they attend class regularly?

✓ 0.952

Show Submitted Answer | Hide Correct Answer | Check My Answer

Open in Reading View