

NAME: _____

DATE: 08/16A-17B/2017

ASSIGNMENT: Probability Nomenclature and Vocabulary

DIRECTIONS: Here are the formulas (formulae) you'll receive on the IB Paper.

6.5	Probability of an event A	$P(A) = \frac{n(A)}{n(U)}$
	Complementary events	$P(A) + P(A') = 1$
6.6	Combined events	$P(A \cup B) = P(A) + P(B) - P(A \cap B)$
	Mutually exclusive events	$P(A \cup B) = P(A) + P(B)$
6.7	Conditional probability	$P(A B) = \frac{P(A \cap B)}{P(B)}$
	Independent events	$P(A \cap B) = P(A) P(B)$

Combined = OR = when either event could happen

Independent = the occurrence of one event has no affect on the other

Mutually Exclusive = two events cannot occur at the same time

I need you to show all calculations clearly so that I can assess your understanding. Writing only the answers will award you no credit.

1.) A box contains 1 defective light bulb and 11 good bulbs. Two bulbs are chosen from the box without replacement. What is the probability that one of two bulbs drawn is defective and one is not?

2.) Of voters in a recent election, 53% were female, 51% were Democrat, and 29% were both female and Democrat.

a.) What is the probability that a voter chosen at random is male?

b.) What is the probability that a voter chosen at random is either female or Democrat?

Answer: _____

Answer: _____

c.) Is being female or Democrat independent of each other? Why? _____

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3.) A rocket being launched has four engines that are independent of each other. The probability of an engine firing is .989. What is the probability of at least one engine not firing?

Answer: _____

4.) The probability of rain on Monday is 10% and on Thursday is 20%. Assuming these are independent, what is the probability that...

a.) it rains on both days?

b.) it does not rain on Monday?

Answer: _____

Answer: _____

c.) it rains on Monday, but not Thursday?

d.) it rains on at least one of these days?

Answer: _____

Answer: _____

e.) it doesn't rain on either day?

Answer: _____

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Answer Key: I need you to show all calculations clearly so that I can assess your understanding. Writing only the answers will award you no credit.

1.) $1/6$

2.) 47%; 75%; No

3.) 4.33%

4.) 2%; 90%; 8%; 28%; 72%