



Probability and Statistics Assignment -01

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Question #1**[20]**

The table below shows the results of a study in which researchers examined a child's IQ and the presence of a specific gene in the child. Find the probability that the child has a high IQ, given that the child has the gene.

	Gene present	Gene not present	Total
High IQ	33	19	52
Normal IQ	39	11	50
Total	72	30	102

Question #2**[20]**

In a jury selection pool, 65% of the people are female. Of these 65%, one out of four works in a health field.

1. Find the probability that a randomly selected person from the jury pool is female and works in a health field.
2. Find the probability that a randomly selected person from the jury pool is female and does not work in a health field.

Question #3**[20]**

A blood bank catalogs the types of blood, including positive or negative Rh-factor, given by donors during the last five days. The number of donors who gave each blood type is shown in the table. A donor is selected at random.

1. Find the probability that the donor has type O or type A blood.
2. Find the probability that the donor has type B blood or is Rh-negative.

		Blood type				
		O	A	B	AB	Total
Rh-factor	Positive	156	139	37	12	344
	Negative	28	25	8	4	65
	Total	184	164	45	16	409

Question #4

[20]

There are 16 students giving final presentations in your history course.

- (a) Three students present per day. How many presentation orders are possible for the first day?
- (b) Presentation subjects are based on the units of the course. Unit B is covered by three students, Unit C is covered by five students, and Units A and D are each covered by four students. How many presentation orders are possible when presentations on the same unit are indistinguishable from each other?

Question #5

[20]

Rotator cuff surgery has a 90% chance of success. The surgery is performed on three patients. Find the probability of the surgery being successful on exactly two patients.