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1. (1 point) METUNCC/Statistics/dist\_match.pg

For each part, select the correct distribution of the random variable  $X$ . (It is not necessary to identify the parameters of the distribution.)

(i) In a certain area of Cyprus 45% of the rocks are igneous. You start collecting rocks until you have 10 igneous rocks. Let  $X$  be the number of other rocks you collected.

$X \sim$

- Distribution?
- Binomial
- Hypergeom.
- Neg.Binom.
- Poisson

(ii) Suppose that 20% of students come late to statistics class. The class has 60 students. Let  $X$  be the number of students who arrive late to today's lecture.

$X \sim$

- Distribution?
- Binomial
- Hypergeom.
- Neg.Binom.
- Poisson

(iii) You are asking people about the date of their birthday. Every 12 minutes you find 28 people who were born in a different month than you. Let  $X$  be the number of people you found in 30 minutes.

$X \sim$

- Distribution?
- Binomial
- Hypergeom.
- Neg.Binom.
- Poisson

(iv) Approximately 28% of the vehicles crossing a bridge weigh more than 2,000 kg. One day, 280 of the 1000 vehicles crossing the bridge weigh more than 2,000 kg. During the first hour 91 crossed the bridge. Let  $X$  be the number of vehicles weighing more than 2,000 kg during that hour.

$X \sim$

- Distribution?
- Binomial
- Hypergeom.
- Neg.Binom.
- Poisson

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2. (1 point) METUNCC/Statistics/dist\_param.pg

For each part, select the correct distribution of the random variable  $X$  and enter the parameters for the distribution (in the same order as for R). If there are multiple parameters, then separate them by commas.

(For a review of the order and values of parameters as entered into R see [this file](#).)

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One season, the Galatasaray football team scores an average of 18% of its attempted goals.

(i) One season Galatasaray attempts a goal roughly every 4 minutes. Let  $X$  be the number of attempted goals in the first 45 minutes of a game.

$X \sim$

- Distribution?
- Binomial
- Hypergeom.
- Neg.Binom.
- Poisson

( — )

(ii) Let  $X$  be the number of goals scored in a game where 13 goals are attempted.

$X \sim$

- Distribution?
- Binomial
- Hypergeom.
- Neg.Binom.
- Poisson

( — )

(iii) In an exciting game, Galatasaray scored its fifth and final goal exactly at the end of the match. Let  $X$  be the number of goals missed.

$X \sim$

- Distribution?
- Binomial
- Hypergeom.
- Neg.Binom.
- Poisson

( — )

(iv) During a best-of-three match, Galatasaray attempted 34 goals, 7 of which scored. Let  $X$  be the number of goals during the first game, out of 8 attempts.

$X \sim$

- Distribution?
- Binomial
- Hypergeom.
- Neg.Binom.
- Poisson

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3. (1 point) METUNCC/Statistics/hypergeom.pg

(For the questions below, you can either enter the answer, or else the R command which generates the answer.)

A student misses 7 out of 28 total statistics lectures one semester. Compute the following probabilities for the student's attendance for the 9 lectures before the first midterm.

The probability that the student attends **exactly** 6 lectures. \_\_\_\_\_

The probability that the student attends **less than or equal to** 6 lectures. \_\_\_\_\_

The probability that the student attends **greater than or equal to** 5 lectures. \_\_\_\_\_

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(For a review of the order and values of parameters as entered into R see **this file**.)

You may use the embedded R window below to check your code and perform computations.

Embedded R window.

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**4. (1 point)** METUNCC/Statistics/nbinom.pg

(For the questions below, you can either enter the answer, or else the R command which generates the answer.)

A student attends 52% of his lectures. Compute the following probabilities for his attendance in statistics lectures this semester.

The probability that the student attends **exactly** 11 lectures before missing 4 lectures. \_\_\_\_\_

The probability that the student attends **less than or equal to** 17 lectures before missing 4 lectures.

\_\_\_\_\_

The probability that the student attends **greater than or equal to** 7 lectures before missing 4 lectures.

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(For a review of the order and values of parameters as entered into R see **this file**.)

You may use the embedded R window below to check your code and perform computations.

Embedded R window.