On average, 1.8 customers per minute arrive at any of the checkout counters of a grocery store. What type of probability distribution can be used to find out the probability that there will be no customer arriving at a checkout counter?
(Poisson distribution)
binomial distribution
hypergeometric distribution
normal distribution
none

A multiple-choice test has 30 questions. There are 4 choices for each question. A student who has no studied for the test decides to answer all questions randomly. What type of probability distribution can be used to figure out his chance of getting at least 20 questions right?
(binomial distribution)
hypergeometric distribution
Poisson distribution
normal distribution
none

The distribution for number of males selected in a sample of 5 students taken without replacement from a class of 9 females and 18 males, is
(Hypergeometric distribution)
binomial distribution
poisson distribution
normal distribution
none

The covariance
(can be positive or negative.)
must be between -1 and +1.
must be positive.
must be less than +1.

Given that X is a normally distributed variable with a mean of 50 and a standard deviation of 2, find the probability that X is between 47 and 54.
(0.9104)
0.7514
0.6522
0
1

$$P(47 < X < 54) = P\left(\frac{47-50}{2} < \frac{X-\mu}{\sigma} < \frac{54-50}{2}\right)$$
$$= P(-1.5 < Z < 2)$$
$$= P(Z < 2) - P(Z < -1.5)$$

Suppose the time interval between two consecutive defective light bulbs from a production line has a uniform distribution over an interval from 0 to 90 minutes. What is the variance of the time interval?

- **675** (circled)
- 700
- 650
- 45
- 725

$$V(x) = \frac{(b-a)^2}{12} = \frac{(90-0)^2}{12} = 675$$

The interval between consecutive hits at a web site is assumed to follow an exponential distribution with a mean of lambda=40 hits per minute. What is the probability that the next hit at the web site will occur within 10 seconds?

- **0.9987** (circled)
- 0.7623
- 0.5411
- 0.6522
- 1
- 0

$$X \sim Exp\left(\lambda = 40/min\right)$$

$$P(X < 10\ sec) = P\left(X < \frac{10}{60}\ min\right)$$

$$= \int_{0}^{10/60} 40\,e^{-40x}\,dx = 0.9987$$

The owner of a fish market determined that the mean weight for a catfish is 3.2 pounds. He also knew that the probability of a randomly selected fish that would weigh more than 3.8 pounds is 20% and the probability that a randomly selected catfish that would weigh less that 2.8 pounds is 30%. The probability that a randomly selected catfish will weigh between 2.8 and 3.8 pounds is equal to

- **0.5** (circled)
- 0.25
- 0.75
- 0
- 1

$$\mu = 3.2$$

$$P(X > 3.8) = 0.2$$

$$P(X < 2.8) = 0.3$$

$$P(2.8 < X < 3.8) = 0.5$$

$$= P(x < 3.8) - P(x < 2.8)$$

$$= 0.8 - 0.3 = 0.5$$

Sampling distribution describes the distribution of

- **statistic** (circled)
- parameter
- both statistic and parameter
- neither statistic not parameter

According to a survey, only 15% of customers who visited the web site of a major retail store made a purchase. Random sample of size 50 is selected. What is the probability that the proportion of customers who made purchase (p) is will be between 20% and 30%?

0.1596

0.2511

1

0

0.9987

0.6522

$$\pi = 0.15$$

$$n = 50$$

$$P(0.20 < p < 0.3)$$

$$= P\left(\frac{0.2 - 0.15}{\sqrt{\frac{0.15(0.85)}{50}}} < Z < \frac{0.3 - 0.15}{\sqrt{\frac{0.15(0.85)}{50}}} \right)$$

$$= 0.1596$$