a= 0 b = 0 c = 2 d = 3

**Question 2.**

µ=223$

σ=50$

P (x ≥ 250$) - ?

n = 43

We need to make sure that sample is normally distributed. To check it, we use the equation below.

n ≥ 30

43 ≥ 30.

Now, it can be said that sample means have a normal distribution.

=

=

Now we need to find z value using this formula.

Z = =

Answer. Unfortunately, the final value in z table is 3.49. We can assume that P (x ≥ 250$) in this case is almost 0.

**Question 8**

N = 500. P =

X = 323

a) We should utilize formula:

p ± zα/2 = 0.646 ± 2.330.646 ± 2.33\*0.0213862 = 0.646 ± 0.0498

The 98% confidence interval is in-between 0.59617 and 0.6958.

b) Hypotheses testing. We can now see that it is a right-sided hypotheses.

H0: π ≤ 0.6

Ha: π > 0.6

For this, z statistic would be as follows.

zstat =

We should reject H0 ,if :

≥

Z alpha can be found using the z table

2.099≥ 1.645

We reject H0. We have sufficient evidence to claim that there exist more than 60% voters who are for Mr. Smith.

**Question 5.**

E = $10

n - ?

The minimum sample size can be found using the formula. For this case, we need value for

= 2.575

The value for z was found using the z-table.

**Answer.** We need to round the answer up, because of conventions. So, n=7. The minimum sample size required is 7 school teachers.

**Question 6.**

P($2600 > x > $2400) - ?

To find the answer, we should refer to z table.

Z =

P(x > $2400) = z =

P(x < $2600) = z =

So, referring to the z table, we have a probability of P(x > $2400). It is actually 0.4988. For P(x < $2600) it is also 0.4988. Thus, P($2600 > x > $2400) is almost 1, or to be more precise 0.9976.

**Question 4.**

µ = λ = 3 days. P(X=4) + P(X=7) - ?

To find the value, we should the Poisson formula:

P(X = x) = *e* is a constant and equals to 2.72

We need to replace the variables by numbers.

P(X = 4) = = =

P(X = 7) = = == 0.000395

P(X=4) + P(X=7) = 0.168 + 0.000395 = 0.168395. This is the answer.

**Question 7.**

30

30

6.2

6.5

2.9

1.9

a)

H0: -= 0

Ha: -≠ 0

b)

**Z stat = =**

c)

Reject H0: if,

≥

≥ = ≥ = ≥

d)

We do not reject H0 ;hence, we have insufficient evidence to claim that there is a difference in average number of movies watched between college students and high school students.

**Question 9.**

a = 7.0

b = 8.0

µ = 8

a)

P (x < 8)-?

In this unique situation, the answer for the question would be 100%. We can check it in this way.

P (x) =

P (x < 8) =

**Answer:** The probability that the machine dispenses less than 8 ounces is 1.

Let **n** be the variable.

**Answer:** The 75th percentile is simply 7.5 ounces.