Q14

Question 10

You did not answer the question.

The community hospital is studying its distribution of patients. A random sample of 311 patients presently in the hospital gave the following information:

Type of Patient	Old Rate of Occurrences	Present Number of Occurrences	exp counts
Maternity Ward	20%	73	62.2
Cardiac Ward	32%	86	99.52
Burn Ward	10%	29	31.1
Children's Ward	15%	48	46.65
All Other Wards	23%	75	71.53

expected % — OBS — $\boxed{311}$

Test the claim at the 5% significance level that the distribution of patients in these wards has not changed. Select the [p-value, Decision to Reject (RH_0) or Failure to Reject (FRH_0)].

a) [p-value = 0.199, RHo]

b) [p-value = 0.398, FRHo]

c) [p-value = 0.044, RHo]

d) [p-value = 0.044, FRHo]

e) [p-value = 0.398, RHo]

$$\frac{(O-E)^2}{E}$$

$$\frac{(73-62.2)^2}{62.2} + \frac{(86-99.52)^2}{99.52} + \cdots$$

$$\chi^2 = 4.06$$

pvalue: $p(\chi^2 > 4.06)$

$\chi^2 cdf(4.06, 999999, 4)$

1- pchisq(4.06, 4) $= .398 > \alpha$

FRH_0

Public Page

Question 8

You did not answer the question.

Hippocrates magazine states that 32 percent of all Americans take multiple vitamins regularly. Suppose a researcher surveyed 750 people to test this claim and found that 273 did regularly take a multiple vitamin. Is this sufficient evidence to conclude that the actual percentage is different from 32% at the 5% significance level?

Select the [p-value, Decision to Reject (RH_0) or Failure to Reject (FRH_0)].

a) [p-value = 0.010, RH0]

b) [p-value = 0.010, FRH0]

c) [p-value = 0.060, FRH0]

d) [p-value = 0.005, FRH0]

e) [p-value = 0.005, RH0]

one sample prop

z

$H_0 \quad p = .32$

$H_a \quad p \neq .32$

$n = 750$

$X = 273$

$\hat{p} = \frac{273}{750} = .364$

$$z = \frac{.364 - .32}{\sqrt{\frac{.32(.68)}{750}}} = 2.583$$

$$2\,p(z > 2.583) = .0098 < \underset{\alpha}{.05}$$

2 · normalcdf (2.583, 99999, 0, 1)

optional

2.583 ——— big #

Public Page 1

P. F.

Question 2

You did not answer the question.

Among 8 electrical components exactly one is known not to function properly. If 3 components are selected randomly, find the probability that exactly one does not function properly.

a) 0.8750

b) 0.3750

c) 0.6699

d) 0.2500

e) 0.6250

f) None of the above

$n(S) = {}_8C_3$

P(exactly one doesn't function)

$$= \frac{{}_1C_1 \cdot {}_7C_2}{{}_8C_3} = \frac{21}{56} = .375$$

Question 3

18 m/c on final

$1\text{-}13 \times 5\text{ pts} = 65$

$14\text{-}18 \times 7\text{ pts} = \underline{35}$ ← mult. parts to answers like 28+30 on pract final

100

Basic Prob. ↙ test 1 #10

$P(E \cup F)$ $P(E \cap F)$ $P(E|F)$

Binomial (#10) ← test 1 #9

Geometric (#11)

Normal

Prob tables:

X	. . . .
P(X)	. . . . .

mean + variance from ↑ (#6 + 5)

$P(Z \leq c) = .98$ find c (#13)

two way tables (like #21 on PF)

$E[aX+b]$ + $Var[aX+b]$ (like #7)

Identify Hyp. test

find stand. error (#16)

Conf interval

LSRL eq., corr, resid

Hyp. test.

Question 27

You did not answer the question. $P = ?$ use $p = .5$

An oil company is interested in estimating the true proportion ($\hat{p}$) of female truck drivers based in five southern states. A statistician hired by the oil company must determine the sample size needed in order to make the estimate accurate to within 1% of the true proportion with 99% confidence. What is the minimum number of truck drivers that the statistician should sample in these southern states in order to achieve the desired accuracy?

ME

a) 16605

b) 16573

c) 16602

d) 16581

e) 16590

f) None of the above

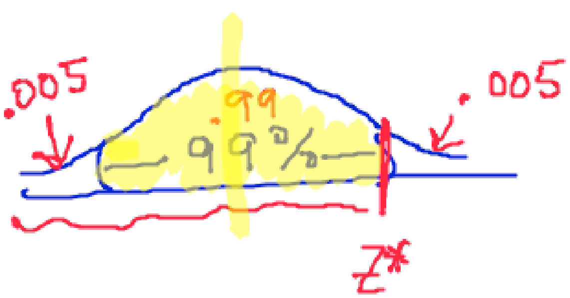
$$z^*_{.99} = 2.576$$

$$.01 > 2.576\sqrt{\frac{.5(1-.5)}{n}}$$

$$\left(\sqrt{n}\right)^2 > \left(\frac{2.576\sqrt{.5(.5)}}{.01}\right)^2$$

$$n > 16589.44$$

Round up



$= \text{InvNorm}(.995)$

Question 22

$n = 64$

You did not answer the question.

$\hat{p}$

A simple random sample of 64 8th graders at a large suburban middle school indicated that 89% of them are involved with some type of after school activity. Find the 98% confidence interval that estimates the proportion of them that are involved in an after school activity.

a) [0.799, 0.981]

b) [0.699, 0.931]

c) [0.849, 0.854]

d) [0.799, 0.781]

e) [0.719, 0.981]

f) None of the above

$$z^*_{.98} = \text{invNorm}\left(\frac{1.98}{2} = .99\right) = 2.326$$

$$.89 \pm 2.326\sqrt{\frac{.89(1-.89)}{64}}$$

$$.89 \pm .091$$

$$[.799, .981]$$

Question 17

You did not answer the question.

In a large population, 76% of the households have cable tv. A simple random sample of 225 households is to be contacted and the sample proportion computed. What is the probability that the sampling distribution of sample porportions is less than 82%?

a) 0.9825

b) 0.1509

c) 0.8491

d) 0.0175

e) 0.4912

f) None of the above

$$P(\hat{p} < .82) = \text{normalcdf}\left(-99999, .82, .76, \sqrt{\frac{.76(1-.76)}{225}}\right)$$

Ch4 (4.4)

You did not answer the question.

Lloyd's Cereal company packages cereal in 1 pound boxes (16 ounces). A sample of 36 boxes is selected at random from the production line every hour, and if the average weight is less than 15 ounces, the machine is adjusted to increase the amount of cereal dispensed. If the mean for 1 hour is 1 pound and the standard deviation 0.2 pound, what is the probability that the amount dispensed per box will have to be increased?

3.2 oz

a) 0.0304

b) 0.3773

c) 0.9696

d) 0.0608

e) 0.2304

f) None of the above

$P(\bar{x} < 15) = \text{normalcdf}(-9999, 15, 16, \frac{3.2}{\sqrt{36}})$

4

Question 4

You did not answer the question.

Suppose you have a distribution, X, with mean = 10 and standard deviation = 3. Define a new random variable Y = 5X - 5. Find the mean and standard deviation of Y.

a) E[Y] = 50; σY = 10

b) E[Y] = 50; σY = 75

c) E[Y] = 45; σY = 75

d) E[Y] = 45; σY = 15

e) E[Y] = 45; σY = 10

f) None of the above

$$E[X] = 10 \quad \sigma_X = 3$$

$$E[5X-5] = 5E[X] - 5 = 5 \cdot 10 - 5 = 45$$

$$\sigma_{5X-5} = 5\sigma_X = 15$$

Question 5

Binomial

same p

Question 8

You did not answer the question.

fixed n

In testing a new drug, researchers found that 1% of all patients using it will have a mild side effect. A random sample of 15 patients using the drug is selected. Find the probability that exactly two will have this mild side effec

n

a) 0.009214

$P(X=2) = \text{binompdf}(15, .01, 2)$

b) 0.05921

c) 0.03921

d) 0.04921

e) 0.01921

f) None of the above

Question 1

You did not answer the question.

The probability that a randomly selected person has high blood pressure (the event H) is P(H) = 0.5 and the probability that a randomly selected person is a runner (the event R) is P(R) = 0.2. The probability that a randomly selected person has high blood pressure and is a runner is 0.1. Find the probability that a randomly selected pers[o]n either has high blood pressure or is a runner or both.

$P(H \cup R) = P(H) + P(R) - P(H \cap R)$

$.5 + .2 - .1$

a) 0.9

b) 0.7

c) 0.5

d) 0.2

e) 0.6

f) None of the above

Question 9

You did not answer the question.

A manufacturer of matches randomly and independently puts 21 matches in each box of matches produced. The company knows that one-tenth of 8 percent of the matches are flawed. What is the probability that a matchbox wil have one or fewer matches with a flaw?

.008 flawed

a) 0.006813

b) 0.9878

c) 0.9920

d) 0.1431

e) 0.8448

f) None of the above

$$P(X \le 1) = \text{binomcdf}(21, .008, 1)$$

$$P(X<3) = P(X \le 2)$$

$$P(X>5) = 1 - P(X \le 5)$$

$$P(X \ge 5) = 1 - P(X \le 4)$$