

Statistics Lecture 5



Feb 19-8:47 AM

Class Quiz 3

Given the chart below

class MP	class F
16	7
25	10
34	13
43	10

class MP → L1

class F → L2

[STAT] → CALC

1:1-Var Stats

Menu
List: L1
Freq List: L2
[Calculate]

Find

1) $\bar{x} = 30.85 \approx 31$

2) $S = 9.461 \approx 9$

3) $n = 40$

4) $S^2 = \frac{11637}{130}$

} Round to whole number

} Reduced fraction

[VARS] [5: Statistics] [3: Sx]

[x²] [MATH] [1: ▸ Frac] [Enter]

No Menu
L1, L2
[Enter]

Mar 28-7:51 AM

Class Quiz 2 Using Calc.

Consider the Sample below

12	15	18	10
16	15	10	8
20	16	14	15

Find

1) $\bar{x} \approx 14$ } Round to whole #

2) $S \approx 4$ } Round to whole #

3) $S^2 = \frac{1619}{132}$ } Reduced fraction

Store \rightarrow L1

STAT \rightarrow **1:1-Var Stats**

With Menu {

- List: L1
- FreqList: **clear**
- Calculate**

No Menu }

- L1 **Enter**

VARS |

- 5: Statistics**
- 3: Sx**
- x² MATH**
- 1: frac Enter**

Mar 21-10:57 AM

(SG 10)

Intro. to Probabilities

$E \rightarrow$ desired event (outcome)

$P(E) \rightarrow$ Probability that event E happens

$$P(E) = \frac{\text{Total \# of all desired outcomes}}{\text{Total \# of all possible outcomes}}$$

Acceptable answers:

- 1) Reduced fraction
- 2) Round to 3-decimal places
- 3) Scientific Notations

Mar 28-8:17 AM

A class of 20 students has 12 Females and 8 males.

If we randomly select one student, find the prob. that is a female.

$$P(\text{Female}) = \frac{12}{20} = \frac{3}{5} = .6$$

Mar 28-8:21 AM

A standard deck of playing cards has 52 cards, 26 red, 12 face, and 4 aces.

If we randomly select one card,

$$1) P(\text{Red}) = \frac{26}{52} = \frac{1}{2} = .5 \quad 2) P(\text{ace}) = \frac{4}{52} = \frac{1}{13} \approx .077$$

$$3) P(\text{Red ace}) = \frac{2}{52} = \frac{1}{26} \approx .038$$

26 Reds, 4 aces

$$4) P(\text{Red or ace}) = \frac{26 + 4 - 2}{52} = \frac{28}{52} = \frac{7}{13} \approx .538$$

Double Count

Mar 28-8:23 AM

Do You Support mass deportation?

	Yes	NO	Total
Democrats	30	70	100
Republicans	80	20	100
Independents	20	30	50
Total	130	120	250

If one person
is randomly
Selected,

$$1) P(\text{Yes}) = \frac{13}{250} = \boxed{\frac{13}{25}}$$

$$2) P(\text{Republican}) = \frac{100}{250} = \boxed{\frac{2}{5}}$$

$$3) P(\text{Republican and Yes}) = \frac{80}{250} = \boxed{\frac{8}{25}}$$

$$4) P(\text{Republican or Yes}) = \frac{100 + 130 - 80}{250} = \frac{150}{250} = \boxed{\frac{3}{5}}$$

Mar 28-8:34 AM

$E \rightarrow$ Desired event

$P(E) \rightarrow$ Prob. that E happens

$\bar{E} \rightarrow E\text{-bar, not } E, E\text{-Complement}$

$$\left. \begin{array}{l} P(E) + P(\bar{E}) = 1 \\ P(\bar{E}) = 1 - P(E) \end{array} \right\} \text{Complement Rule}$$

$$P(\text{Rain}) = 0.2 \quad P(\bar{\text{Rain}}) = 1 - P(E) = 1 - 0.2 = \boxed{0.8}$$

$$P(E) = \frac{3}{40}$$

1) Find $P(E)$ in decimal. $P(E) = \boxed{0.075}$

2) Find $P(E)$ in percent notation. $P(E) = 0.075(100)\% = \boxed{7.5\%}$

3) Find $P(\bar{E})$ in reduced fraction.

$$P(\bar{E}) = 1 - P(E) = 1 - \frac{3}{40} = \frac{37}{40}$$

1 \square 3 \square 40 \square Math \square 1 \square \square \square Enter

Mar 28-8:44 AM

Some Prob. rules & language

$$1) 0 \leq P(E) \leq 1$$

$$2) \sum P(E) = 1$$

$$3) P(E) = 1 \iff \text{Sure event}$$

$$4) P(E) = 0 \iff \text{Impossible event}$$

$$5) 0 < P(E) \leq .05 \iff \text{Rare event}$$

Mar 28-8:51 AM

Select one number from

1, 2, 3, 4,, 37, 38, 39, 40

$$1) P(\text{Select } 2) = \frac{1}{40} = \boxed{.025}$$

Rare event

$$2) P(\text{Select 5 or below}) = \frac{5}{40} = \frac{1}{8} = \boxed{.125}$$

$$3) P(\text{select 35 or more}) = \frac{6}{40} = \frac{3}{20} = \boxed{.15}$$

$$4) P(\text{Select multiple of 3}) = \frac{13}{40} = \boxed{.325}$$

3 6 9 12

15 18 21 24

27 30 33 36

39

Mar 28-8:56 AM

If we randomly select one person, find the prob. that he/she has a birthday

1) today $\frac{1}{365}$

2) This week $\frac{1}{52}$

3) This month $\frac{1}{12}$

Mar 28-9:02 AM

Class Quiz 4

x	y
2	6
3	10
4	10
5	12
8	15

Find

1) $a \approx 4.6$

2) $b \approx 1.4$

3) $r^2 \approx 91\%$

4) $r \approx .952$

} Round to
1-dec

} whole%

} 3-decimal
places

Mar 28-9:06 AM