

(1) X: 1, 6, 7, 10

$$\bar{x} = \frac{\sum X}{n} \quad \bar{x} = \frac{1+6+7+10}{4} \quad \bar{x} = \frac{24}{4} = \boxed{6}$$

$$\text{MIDRANGE} = \frac{\text{MAX} - \text{MIN}}{2} = \frac{10 + 1}{2} = \frac{11}{2} = \boxed{5.5}$$

MEDIAN is middle value 1, 6, $\sqrt{}$ 7, 10 $\boxed{6.5}$

$$S = \sqrt{\frac{\sum (x - \bar{x})^2}{n-1}}$$

$$S = \sqrt{\frac{42}{3}} = \sqrt{14}$$

$$S \approx \boxed{3.7}$$

X	X - \bar{x}	(X - \bar{x}) ²
1	-5	25
6	0	0
7	1	1
10	4	<u>16</u>

ENTER: 1-VarStats L1, L2

(2)

X	$P(X)$	$X \cdot P(X)$	X^2	$P(X)$	$X^2 \cdot P(X)$
0	$\frac{1}{8}$	$\frac{0}{8}$	0	$\frac{1}{8}$	$\frac{0}{8}$
2	$\frac{2}{8}$	$\frac{4}{8}$	4	$\frac{2}{8}$	$\frac{8}{8}$
4	$\frac{3}{8}$	$\frac{12}{8}$	16	$\frac{3}{8}$	$\frac{48}{8}$
6	$\frac{2}{8}$	$\frac{12}{8}$	36	$\frac{2}{8}$	$\frac{72}{8}$
		$\Sigma = \frac{28}{8}$			$\frac{128}{8}$

(b) $\mu = \Sigma x p(x) = \frac{28}{8} = \boxed{3.5}$

$$\sigma = \sqrt{[\Sigma x^2 p(x)] - \mu^2}$$

$$\begin{aligned} \sigma &= \sqrt{\frac{128}{8} - \left(\frac{28}{8}\right)^2} = \sqrt{\frac{64}{4} - \left(\frac{7}{2}\right)^2} \\ &= \sqrt{\frac{64}{4} - \frac{49}{4}} \\ &= \sqrt{\frac{15}{4}} \approx \boxed{1.9} \end{aligned}$$

(c) $E = \mu = \Sigma x \cdot p(x) \quad E = \mu = \boxed{3.5}$

(d) $\mu - 2\sigma \quad 3.5 - 2(\sigma) \approx \boxed{-0.37}$

LOWER BOUND
FOR UNUSUAL

SO, NO IT WOULD NOT BE. $\mu - 2\sigma \approx -0.37$, IS LESS THAN ZERO.

(3) BINOMIAL

✓ F $n=15$
✓ I
✓ T
✓ CONSTANT $p=.70$

$$(a) P(x=8) = \text{binomialpdf}(15, .70, 8) \approx \boxed{0.081}$$

$$(b) \mu = np \quad \mu = 15(.7) = \boxed{10.5}$$

$$\sigma = \sqrt{npq} \quad \sigma = \sqrt{(15)(.7)(.3)} \approx \boxed{1.8}$$

$$(c) P(x \geq 10) = 1 - \text{binomcdf}(15, .70, 9) \approx \boxed{0.722}$$

$$(d) P(x < 7) = P(x \leq 6)$$

$$= \text{binomcdf}(15, .70, 6) \approx \boxed{0.015}$$

Yes, this would be unusual since it is less than 5%.

(A)

	WOMEN	MEN	TOTAL
GRADUATE	12	8	20
NOT GRADUATE	14	16	30
TOTAL	26	24	50

$$(a) P(\text{WOMAN}) = \frac{26}{50} = \boxed{0.52}$$

$$(b) P(\text{MAN OR GRAD}) = P(\text{MAN}) + P(\text{GRAD}) - P(\text{MAN and GRAD}) \\ = \frac{24}{50} + \frac{20}{50} - \frac{8}{50} = \frac{36}{50} = \boxed{0.72}$$

$$(c) P(\text{MAN and MAN and MAN}) = \frac{24}{50} \cdot \frac{23}{49} \cdot \frac{22}{48} \approx \boxed{0.103}$$

$$(d) P(\text{MAN} | \text{GRAD}) = \frac{8}{20} = \boxed{0.4}$$

$$= \frac{P(\text{GRAD AND MAN})}{P(\text{GRAD})} = \frac{\frac{8}{50}}{\frac{20}{50}} = \frac{8}{20}$$

(5)

$$(a) \mu = \frac{1129}{16} \approx \boxed{70.6}$$

$$\text{MODE} = \boxed{68}$$

$$\sigma \approx \boxed{13.8}$$

$$\text{RANGE} = 96 - 42 = \boxed{54}$$

$$(b) P_{60} \quad \overset{\text{LOCATOR}}{L} = \frac{60}{100} \cdot 16 \quad L = 9.6 \text{ Round up to } 10^{\text{th}}$$

$$\text{So } P_{60} \text{ is } 10^{\text{th}} \text{ number} = \boxed{71}$$

$$(c) Z = \frac{x - \mu}{\sigma} \quad Z = \frac{76 - \mu}{\sigma} \quad Z \approx \boxed{0.39}$$

(d)

STEM	LEAVES
4	2
5	19
6	357889
7	136
8	06
9	56

(6)

<u>LOWER BOUNDARY</u>	<u>LOWER LIMIT</u>	<u>UPPER LIMIT</u>	<u>UPPER BOUNDARY</u>	<u>L1 ↓</u> <u>CLASS MIDPOINT</u>	<u>L2 ↓</u> <u>freq.</u>	<u>REL. freq.</u>	<u>cum freq.</u>
20.5	21	35	35.5	28	2	$\frac{2}{44}$	2
35.5	36	50	50.5	43	5	$\frac{5}{44}$	7
50.5	51	65	65.5	58	8	$\frac{8}{44}$	15
65.5	66	80	80.5	73	12	$\frac{12}{44}$	27
80.5	81	95	95.5	88	11	$\frac{11}{44}$	38
95.5	96	110	110.5	103	6	$\frac{6}{44}$	44

(a) see table, CLASS WIDTH = $\boxed{15}$

(b) MID POINTS IN L1, freq^s in L2 the 1-var stats L1, L2
 $\bar{x} \approx \boxed{72.7}$ $S \approx \boxed{20.6}$ for a sample
 $\mu \approx \boxed{72.7}$ $\sigma \approx \boxed{20.3}$ for a population

(c) see table

(d) see table

(7) (a)

X	P(X)
200	1/4
300	3/4

 $E = \sum x p(x) = (200)(1/4) + (300)(3/4) = \boxed{\$275}$

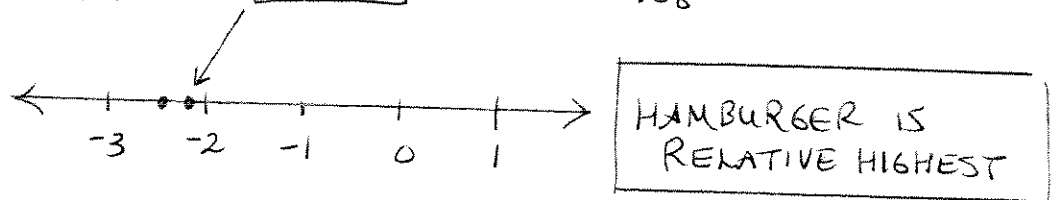
(b) $\frac{55}{100} \cdot \frac{54}{99} \cdot \frac{53}{98} \cdot \frac{52}{97} \cdot \frac{51}{96} \approx \boxed{0.046}$ YES, UNUSUAL. LESS THAN 5%.

(c) $P(X \geq 1) = 1 - P(\text{all do NOT live on campus})$

ϕ live	at least 1 lives $1 - 2n^{-6}$
-------------	-----------------------------------

 $= 1 - (.55)^6 \approx \boxed{0.972}$

(d) $Z_H = \frac{3.21 - 3.86}{.21} \approx \boxed{-3.10}$ $Z_M = \frac{.83 - 1.09}{.08} = -3.25$



(e) BINOMIAL $\mu = np$ $\mu = (12)(.62) = \boxed{7.44}$
 $\sigma = \sqrt{npq}$ $\sigma = \sqrt{(12)(.62)(.38)} \approx \boxed{1.68}$

(f) $P(1^{\text{st}} \text{ AND } 2^{\text{nd}}) = (.4)(.3)$
 $= \boxed{0.12}$