Ungrouped Data

	A	B	C	D	E	F	G
	23	33	46	129	33	321	461
	39	49	78	156	41	319	782
	32	42	64	145	49	231	643
	66	76	132	160	56	265	132
	58	68	116	119	85	541	126
	42	52	84	134	24	442	184
	37	47	74	170	73	358	274
	49	59	98	98	94	149	398
	47	57	94	144	74	333	394
	32	42	64	135	23	301	464
				162	82	329	156
				152	44	149	288
				147		231	
				136		149	
				152		333	
				138		256	
Mean							
Mode							
Median							
Min							
Q1							
Q2							
Q3							
Max							
Range							
Box_Plot							
St. Dev							
Variance							
Est St. Dev							
99%							
99%							
95%							
95%							
68%							
68%							

Answers to Ungrouped Data

	A	B	C	D	E	F	G
	23	33	46	129	33	321	461
	39	49	78	156	41	319	782
	32	42	64	145	49	231	643
	66	76	132	160	56	265	132
	58	68	116	119	85	541	126
	42	52	84	134	24	442	184
	37	47	74	170	73	358	274
	49	59	98	98	94	149	398
	47	57	94	144	74	333	394
	32	42	64	135	23	301	464
				162	82	329	156
				152	44	149	288
				147		231	
				136		149	
				152		333	
				138		256	
Mean	***42.50***	***52.50***	***85.00***	***142.31***	***56.50***	***294.19***	***358.50***
Mode	***32***	***42***	***64***	***152***		***149***	
Median	***40.5***	***50.5***	***81***	***144.5***	***52.5***	***310***	***341***
Min	***23***	***33***	***46***	***98***	***23***	***149***	***126***
Q1	***32***	***42***	***64***	***134.5***	***37***	***231***	***170***
Q2	***40.5***	***50.5***	***81***	***144.5***	***52.5***	***310***	***341***
Q3	***49***	***59***	***98***	***154***	***78***	***333***	***462.5***
Max	***66***	***76***	***132***	***170***	***94***	***541***	***782***
Range	***43***	***43***	***86***	***72***	***71***	***392***	***656***
Box_Plot							
St. Dev	***12.90***	***12.90***	***25.81***	***17.78***	***24.55***	***105.19***	***207.51***
Variance	***166.50***	***166.50***	***666.00***	***315.96***	***602.82***	***11065.10***	***43061.36***
Est St. Dev	***10.75***	***10.75***	***21.5***	***18***	***17.75***	***98***	***164***
99%	***81.21***	***91.21***	***162.42***	***195.64***	***130.16***	***609.76***	***981.04***
99%	***3.79***	***13.79***	***7.58***	***88.99***	***-17.16***	***-21.38***	***-264.04***
95%	***68.31***	***78.31***	***136.61***	***177.86***	***105.60***	***504.57***	***773.52***
95%	***16.69***	***26.69***	***33.39***	***106.76***	***7.40***	***83.81***	***-56.52***
68%	***55.40***	***65.40***	***110.81***	***160.09***	***81.05***	***399.38***	***566.01***
68%	***29.60***	***39.60***	***59.19***	***124.54***	***31.95***	***189.00***	***150.99***

A. **Grouped Data**

Age(Month)	f	m	$f \times m$	$f \times m^2$
1 - 3	5	2		
3 - 5	10		40	
5 - 7	15			540
7 - 9	12	8	96	
9 - 11	6			600
11 - 13	2	12		
	$\boldsymbol{n} = \sum f =$		$\sum (f \times m) =$	$\sum (f \times m^2) =$

Draw the

1. Histogram (write your observation)
2. Frequency polygon

Compute.

3. Mean?*(Answ:* **6.4** *)*
4. Variance?*(* ***Answ*** **6.69** *)*

5. Standard deviation? ***(Answ 2.6)***
6. Apply all three empirical rules.

$0 <$ **99.7 %** of data < 14.2, $1.2 <$ **95 %** of data < 11.6, $3.8 <$ **68 %** of data < 9

B.

Scores	f	m	$f \times m$	$f \times m^2$
00-10	**2**	**5**		
10-20	**6**			**1350**
20-30	**8**		**200**	**5000**
30-40	**14**		**490**	**17150**
40-50	**16**			**32400**
50-60	**14**	**55**		
60-70	**16**		**1040**	
70-80	**12**			
80-90	**8**			
90-100	**4**			
	$\boldsymbol{n} = \sum f =$		$\sum (f \times m) =$	$\sum (f \times m^2) =$

Draw the

1. Histogram (write your observation)
2. Frequency polygon

Compute.

3. Mean? (***Answ 52.80)***
4. Variance? (***Answ 490.06)***

5. Standard deviation? (***22.14)***
6. Apply all three empirical rules.

$0 <$ **99.7 %** of class < 119.22, $8.52 <$ **95 %** of class < 97.08, $30.66 <$ **68 %** of class < 74.94

C.

Weights	f	m	$f \times m$	$f \times m^2$
25 - 35	1			
35 - 45	3			4800
45 - 55	7		350	
55 - 65	10			
65 - 75	11			
75 - 85	15			
85 - 95	18			
95 - 105	28			280000
105 - 115	32		3520	
	$n = \sum f =$		$\sum (f \times m) =$	$\sum (f \times m^2) =$

Draw the

1. Histogram (write your observation)
2. Frequency polygon

Compute.

3 Mean? ***(Answ 88.08)***

4. Variance? ***(Answ 422.09)***

5. Standard deviation? ***(20.54)***

6. Apply all three empirical rules.

D.

Time(sec)	f	m	$f \times m$	$f \times m^2$
6 - 12	**100**			
12 - 18	**60**	**15**		
18 - 24	**50**			**22050**
24 - 30	**20**			
30 - 36	**8**	**33**		
36 - 42	**6**			
42 - 48	**4**			**8100**
48 - 54	**2**		**102**	
	$n = \sum f =$		$\sum (f \times m) =$	$\sum (f \times m^2) =$

Draw the

1. Histogram (write your observation)
2. Frequency polygon

Compute.

3. Mean? (***Answ 16.68)***

4. Variance? (***Answ 79.58)***

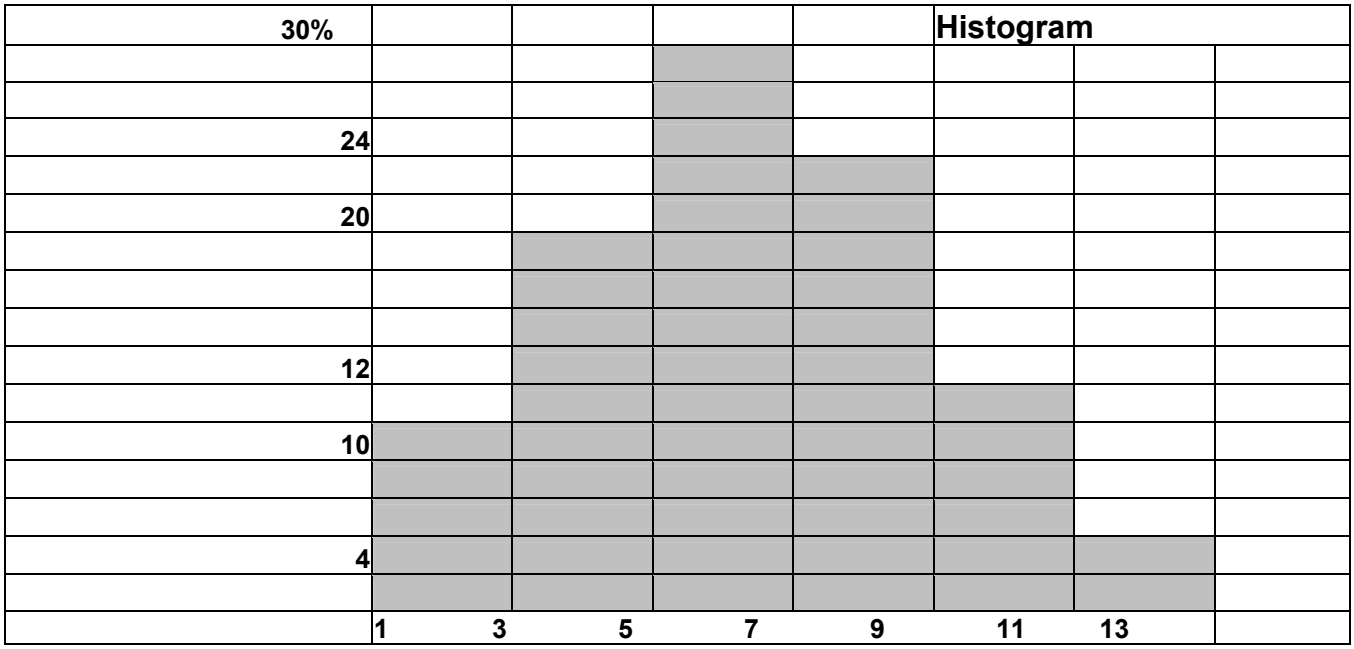
5. Standard deviation?***(8.92)***

6. Apply all three empirical rules.

Answer for Group Data(Frequency Table)

Age(Month)	f	m	$f \times m$	$f \times m^2$
1 - 3	5	2	10	20
3 - 5	10	4	40	160
5 - 7	15	6	90	540
7 - 9	12	8	96	768
9 - 11	6	10	60	600
11 - 13	2	12	24	288
	$n = \sum f = 50$		$\sum (f \times m) = 320$	$\sum (f \times m^2) = 2376$

Problem A



3. **Mean**: $\bar{X} = \dfrac{\sum (f \times m)}{n} = \dfrac{320}{50} = \mathbf{6.4}$

4. **Variance**: $S^2 = \dfrac{n\sum (f \times m^2) - \left(\sum (f \times m)\right)^2}{n(n-1)} = \dfrac{50(\mathbf{2376}) - (\mathbf{320})^2}{50(50-1)} = \dfrac{16400}{2450} = \mathbf{6.69}$

5. **Standard deviation** = $S = \sqrt{\mathbf{6.69}} = \mathbf{2.59} = \mathbf{2.6}$

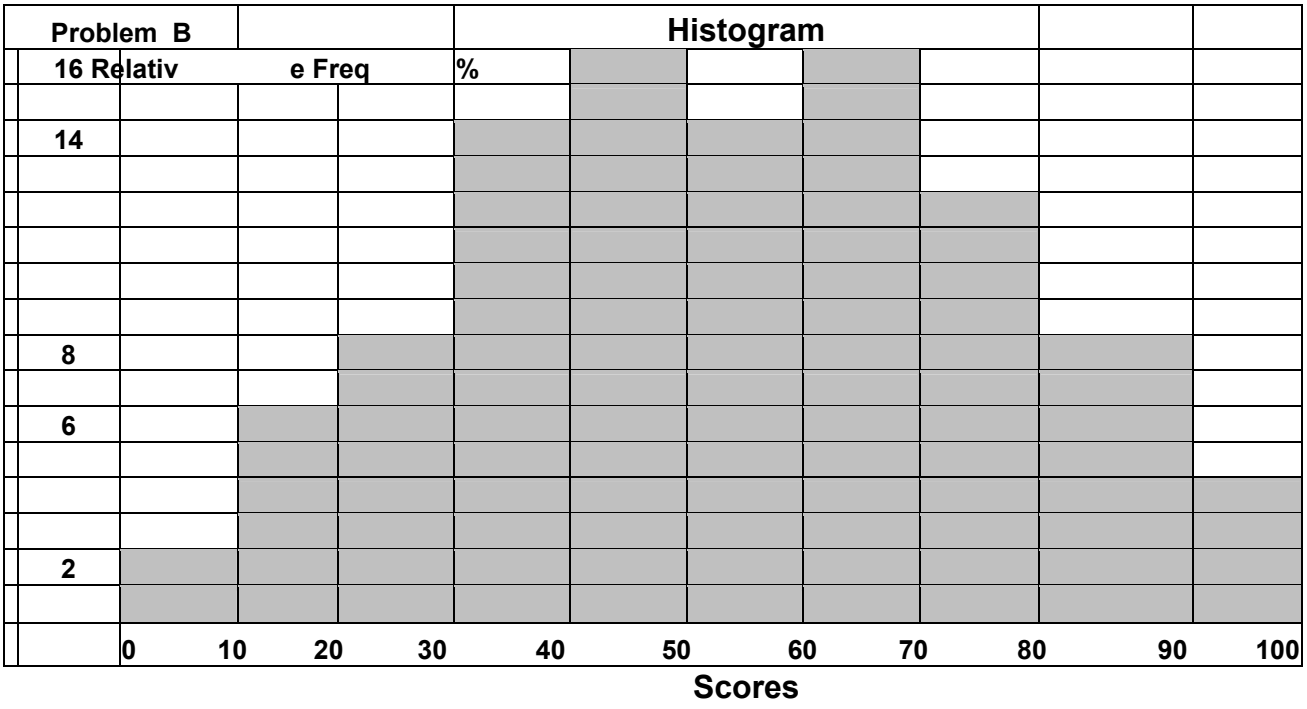
6. **Histogram is centered so the results of empirical rules will be valid.**

$99.7\% = 6.4 \pm 3(2.6) = 6.4 \pm 7.8$ $\quad 0 <$ **99.7 %** of data < 14.2

$95\% = 6.4 \pm 2(2.6) = 6.4 \pm 5.2$ $\quad 1.2 <$ **95 %** of data < 11.6

$68\% = 6.4 \pm 1(2.6) = 6.4 \pm 2.6$ $\quad 3.8 <$ **68 %** of data < 9

B				
Scores	**f**	**m**	$f \times m$	$f \times m^2$
00-10	**2**	**5**	**10**	**50**
10-20	**6**	**15**	**90**	**1350**
20-30	**8**	**25**	**200**	**5000**
30-40	**14**	**35**	**490**	**17150**
40-50	**16**	**45**	**720**	**32400**
50-60	**14**	**55**	**770**	**42350**
60-70	**16**	**65**	**1040**	**67600**
70-80	**12**	**75**	**900**	**67500**
80-90	**8**	**85**	**680**	**57800**
90-100	**4**	**95**	**380**	**36100**
	$n = \sum f =$ **100**		$\sum (f \times m) =$ **5280**	$\sum (f \times m^2) =$ **327300**



3. **Mean**: $\overline{X} = \dfrac{\sum (f \times m)}{n} = \dfrac{5280}{100} =$ **52.80**

4. **Variance**: $S^2 = \dfrac{n\sum (f \times m^2) - \left(\sum (f \times m)\right)^2}{n(n-1)} = \dfrac{100(\mathbf{327300}) - (\mathbf{5280})^2}{100(100-1)} = \dfrac{4851600}{9900} =$ **490.06**

5. **Standard deviation** = $S = \sqrt{\mathbf{490.06}} =$ **22.14**

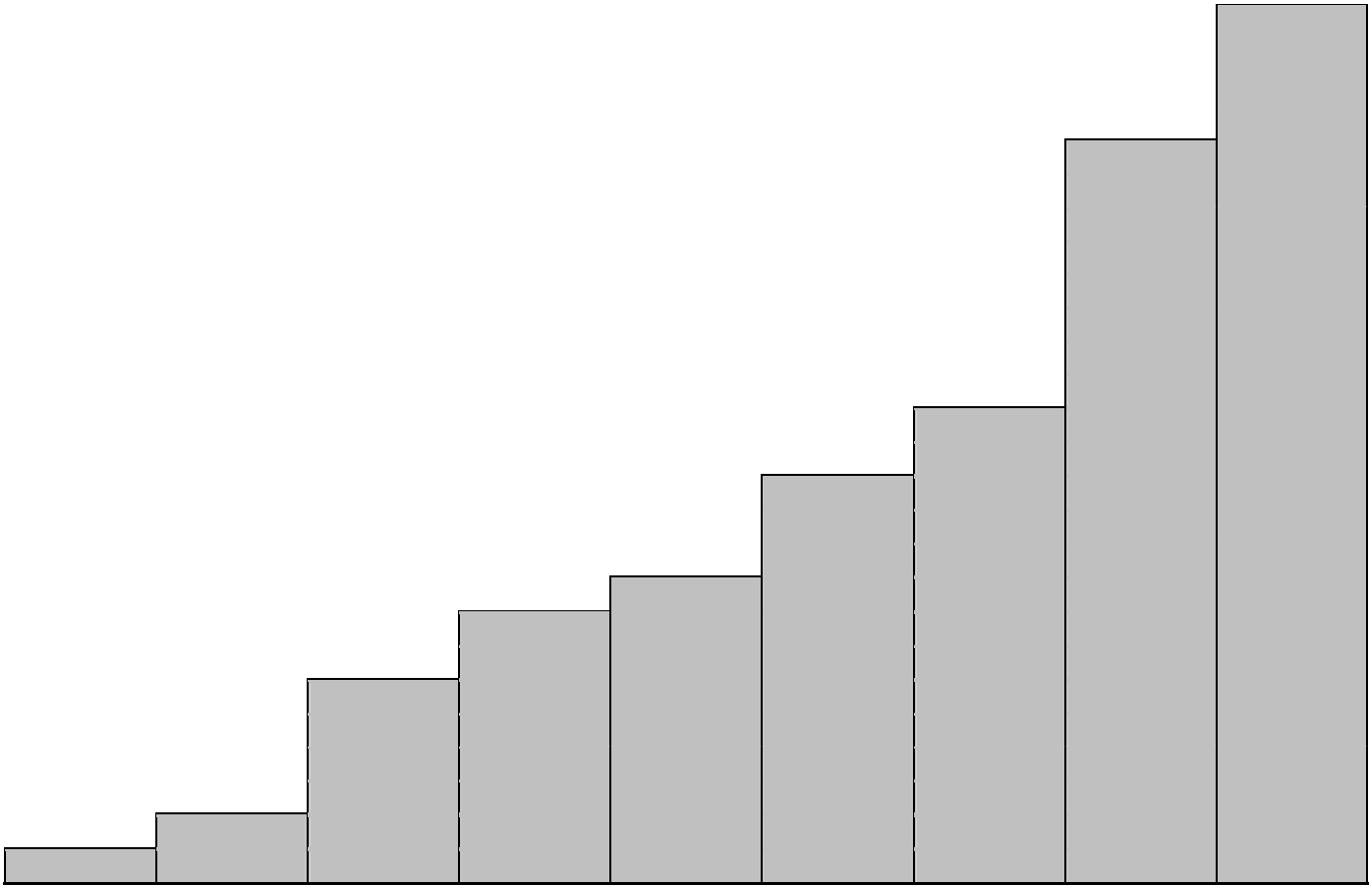
Histogram is relatively centered so the results of empirical rules will be valid.

$99.7\% = 52.8 \pm 3(22) = 52.8 \pm 66$ $\quad 0 <$ **99.7 %** of class got scores < 118.8

$95\% = 52.8 \pm 2(22) = 52.8 \pm 44$ $\quad 8.8 <$ **95 %** of class got scores < 96.8

$68\% = 52.8 \pm 1(22) = 52.8 \pm 22$ $\quad 30.8 <$ **68 %** of class got scores < 74.8

Problem C				
Weights	**f**	**m**	$f \times m$	$f \times m^2$
25 - 35	1	30	30	900
35 - 45	3	40	120	4800
45 - 55	7	50	350	17500
55 - 65	10	60	600	36000
65 - 75	11	70	770	53900
75 - 85	15	80	1200	96000
85 - 95	18	90	1620	145800
95 - 105	28	100	2800	280000
105 - 115	32	110	3520	387200
	$n = \sum f =$ **125**		$\sum f \times m =$ **11010**	$\sum f \times m^2 =$ **1022100**



3. **Mean**: $\overline{X} = \dfrac{\sum (f \times m)}{n} = \dfrac{11010}{125} =$ **88.08**

4. Variance: $S^2 = \dfrac{n\sum(f\times m^2)-\left(\sum(f\times m)\right)^2}{n(n-1)} = \dfrac{125(\mathbf{1022100})-(\mathbf{11010})^2}{125(125-1)} = \dfrac{6542400}{15500} = \mathbf{422.09}$

5. Standard deviation = $S = \sqrt{\mathbf{422.09}} = \mathbf{20.54}$

Histogram is not centered so the results of empirical rules will not be valid.

$99.7\% = 88.08 \pm 3(20.54) = 88.08 \pm 61.62$ $\quad 26.46 <$ **99.7 %** of weights are between < 149.7

$95\% = 88.08 \pm 2(20.54) = 88.08 \pm 41.08$ $\quad 47 <$ **95 %** of weights are between < 129.16

$68\% = 88.08 \pm 1(20.54) = 88.08 \pm 20.54$ $\quad 67.54 <$ **68 %** of weights are between < 108.62

D				
Time(sec)	**f**	**m**	$f\times m$	$f\times m^2$
6 - 12	100	9	900	8100
12 - 18	60	15	900	13500
18 - 24	50	21	1050	22050
24 - 30	20	27	540	14580
30 - 36	8	33	264	8712
36 - 42	6	39	234	9126
42 - 48	4	45	180	8100
48 - 54	2	51	102	5202
	$\boldsymbol{n} = \sum f = \mathbf{250}$		$\sum(f\times m) = \mathbf{4170}$	$\sum(f\times m^2) = \mathbf{89370}$

3. Mean: $\bar{X} = \dfrac{\sum(f\times m)}{n} = \dfrac{4170}{250} = \mathbf{16.68}$

4. Variance: $S^2 = \dfrac{250(\mathbf{89370})-(\mathbf{4170})^2}{250(250-1)} = \mathbf{79.58}$ $\quad$ **5. Standard deviation** = $S = \sqrt{\mathbf{79.58}} = \mathbf{8.92}$

Histogram is not centered so the results of empirical rules will not be valid.

$99.7\% = 16.68 \pm 3(8.92) = 16.68 \pm 26.76$ $\quad 0 <$ **99.7 %** of Times are between < 43.44

$95\% = 16.68 \pm 2(8.92) = 16.68 \pm 17.84$ $\quad 0 <$ **95 %** of Times are between < 34.52

$68\% = 16.68 \pm 1(8.92) = 16.68 \pm 8.92$ $\quad 7.76 <$ **68 %** of Times are between < 25.6

Regression and correlation

A.

	x = Hours Study/week	y = Test Score	x^2	y^2	$x\,y$
1 7		68			
2 11		86			
3 16		98			
4 12		88			
5 8		79			
6 6		69			
	$\sum x = 60$	$\sum y = 488$	$\sum x^2 = 670$	$\sum y^2 = 40370$	$\sum x\,y = 5092$

1. Use the data and plot the data as a scattered diagram and **comment** on the pattern of the points.

2. Compute the correlation coefficient and **comment** on that:

3. Compute the slope and y-intercept and write the equation of regression line.

4. Explain the slope based on the regression equation and the in relation of x and y variables.

5. Compute average and standard deviation for both x and y variables.

6. If one student studies 10 hours a week, use **Reg. Equ.** to estimate her test score.
7. If one student has test score of 90, use **Reg. Equ.** to estimate number of hours he spends studying per week.
and if
8. Compute the coefficient of determination $(r^2 \times 100)$ and **comment** on that:

B

X = Experience(yrs)	14	3	5	6	4	9	18	5	16
Y = Monthly Salary $(000)	42	24	33	31	29	39	47	30	43

1. Use the data and plot the data as a scattered diagram and **comment** on the pattern of the points.

2. Compute the correlation coefficient and **comment** on that_____

3. Compute the slope and y-intercept and write the equation of regression line._____

4. Explain the slope based on the regression equation and the in relation of x and y variables.

5. Compute average and standard deviation for both x and y variables._____

6. If some one's experience is 10 years old, use **Reg. Equ.** to estimate his salary. _____

7. If some one's salary is $38, 000, use **Reg. Equ.** to estimate her experience. _____

8. Compute the coefficient of determination and **comment** on that.

C

X = Year (2000=0)	0	1	2	3	4	5	6	7	8	9	10
Y= Net connected PCs(mil)	22	32	45	58	70	86	99	119	140	155	178

1. Use the data and plot the data as a scattered diagram and **comment** on the pattern of the points.

2. Compute the correlation coefficient and **comment** on that_____

3. Compute the slope and y-intercept and write the equation of regression line._____

4. Explain the slope based on the regression equation and the in relation of x and y variables.

5. Compute average and standard deviation for both x and y variables._____

6. Use **Reg. Equ.** to estimate how many PCs will be connected by year 2009? _____

7. Use **Reg. Equ.** to estimate in what year about 250 million PCs are net connected._____

8. Compute the coefficient of determination and **comment** on that.

D

X= IQ Score	120	140	130	150	142	130	135	175	149	168
Y=Reading Score	62	62	63	65	66	67	68	68	70	72

1. Use the data and plot the data as a scattered diagram and **comment** on the pattern of the points.

2. Compute the correlation coefficient and **comment** on that_____

3. Compute the slope and y-intercept and write the equation of regression line._____

4. Explain the slope based on the regression equation and the in relation of x and y variables.

5. Compute average and standard deviation for both x and y variables._____

6. If some one's IQ score is 100 estimate her reading score._____

7. If some one's reading score is 86 estimate his IQ score. _____

8. Compute the coefficient of determination and **comment** on that.

E.

X= Midterm	75	68	82	91	84	77	72	88	90	66	70	81	59
Y= Final	77	72	80	89	89	80	72	88	92	70	72	83	66

1. Use the data and plot the data as a scattered diagram and **comment** on the pattern of the points.

2. Compute the correlation coefficient and **comment** on that_____

3. Compute the slope and y-intercept and write the equation of regression line._____

4. Explain the slope based on the regression equation and the in relation of x and y variables.

5. Compute average and standard deviation for both x and y variables._____

6. If some one gets 74 on the midterm estimate his final score._____

7. If some one gets 74 on the final estimate her midterm score._____

8. Compute the coefficient of determination and **comment** on that.

_____

F.

X = Number of times absent	2	3	5	2	6	0	4	3	9	5	0	4	8
Y = Average test scores	92	88	80	85	71	85	74	77	65	70	89	76	67

1. Use the data and plot the data as a scattered diagram and **comment** on the pattern of the points.

2. Compute the correlation coefficient and **comment** on that_____

3. Compute the slope and y-intercept and write the equation of regression line._____

4. Explain the slope based on the regression equation and the in relation of x and y variables.

5. Compute average and standard deviation for both x and y variables._____

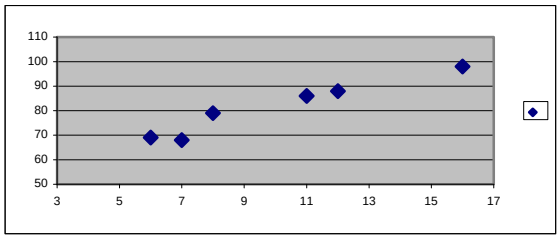
6. If some one has been absent 7 times, then estimate his average test score._____

7. If some one's average test score is 90, then estimate the number of absentees she might have_____

8. Compute the coefficient of determination and **comment** on that.

Answers

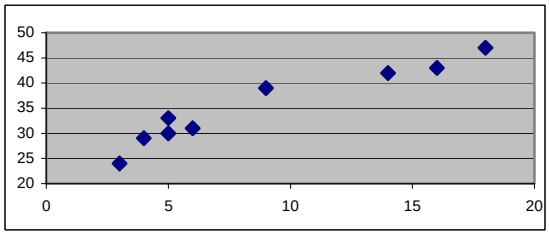
Problem A



	x	y
Mean 10		81.33
St Dev.	3.74	11.66
Correl Coeff	$r =$ 0.972	
Slope 3.03		
Y-itc 51.05		

Y = 3.03 X + 51.05
X = 10 , y' = ? = 81.35
Y = 90 , x' = ? = 12.85

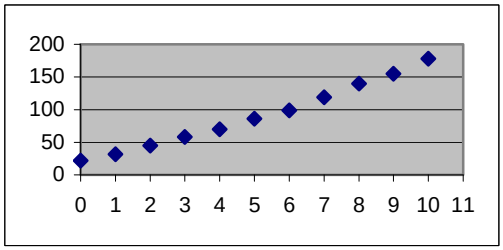
Problem B



	x	y
Mean 8.889		35.333
St Dev.	5.667	7.697
Correl Coeff	$r =$ 0.961	
Slope 1.305		
Y-itc 23.730		

Y = 1.305 X + 23.73
X = 10 , y' = ? = 36.78
Y = 38 , x' = ? = 10.93

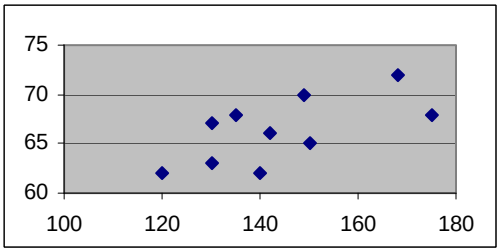
Problem C



	x	y
Mean 5.000		91.273
St Dev.	3.317	51.794
Correl Coeff	$r =$ 0.994	
Slope 15.527		
Y-itc 13.636		

Y = 15.527 X +13.636
X = 11 , y' = ? = 184.47
Y = 250 , x' = ? = 15.22 = 2015

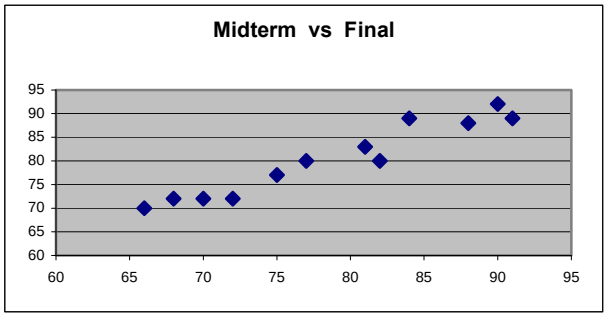
Problem D



	x	y
Mean 143.90	0	66.300
St Dev.	17.214	3.368
Correl Coeff	$r =$ 0.656	
Slope 0.128		
Y-itc 47.830		

Y = 0.128 X + 47.83
X = 100 , y' = ? = 60.63
Y = 86 , x' = ? = 298.20

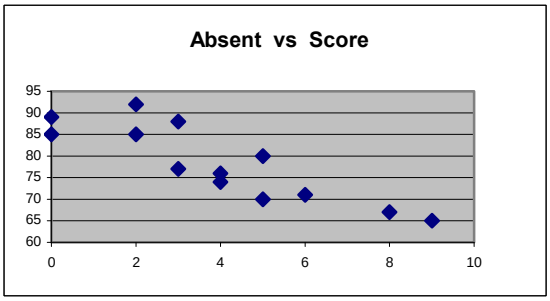
Problem E



Mean 77.154		79.231
St Dev.	9.915	8.506
Correl Coeff	$r = 0.971$	
Slope 0.833		
Y-itc 14.971		

Y = 0.833 X +14.971	
X = 74 ,	$y' = ? = 76.61$
Y = 74 ,	$x' = ? = 70.86$

Problem F



Mean 3.923		78.385
St Dev.	2.722	8.856
Correl Coeff	$r = -0.870$	
Slope	−2.830	
Y-itc 89.485		

Y = −2.83 X + 89.485	
X = 7 ,	$y' = ? = 69.68$
Y = 90 ,	$x' = ? = -0.18$

BP DATE:_____, Name_____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Provide an appropriate response.

1) Which of the following cannot be the probability of an event? 1) _____

A) $\frac{\sqrt{5}}{3}$ B) –32 C) 0 D) 0.001

2) If A, B, C, and D, are the only possible outcomes of an experiment, find the probability of D using the table below. 2) _____

Outcome	A	B	C	D
Probability	1/7	1/7	1/7	

A) 4/7 B) 3/7 C) 1/7 D) 1/4

3) The probability that event A will occur is $P(A) = \frac{\text{Number of successful outcomes}}{\text{Number of unsuccessful outcomes}}$ 3) _____

A) True B) False

4) The probability that event A will occur is $P(A) = \frac{\text{Number of successful outcomes}}{\text{Total number of all possible outcomes}}$ 4) _____

A) False B) True

5) In terms of probability, a(n) _____ is any process with uncertain results that can be repeated. 5) _____

A) Experiment B) Event C) Sample space D) Outcome

6) A(n) _____ of a probability experiment is the collection of all outcomes possible. 6) _____

A) Event set B) Prediction set C) Bernoulli space D) Sample space

7) True or False: An outcome is any collection of events from a probability experiment. 7) _____

A) False B) True

8) In a 1–pond bag of skittles the possible colors were red, green, yellow, orange, and purple. The probability of drawing a particular color from that bag is given below. Is this a probability model? Answer Yes or No. 8) _____

Color	Probability
Red	0.2299
Green	0.1908
Orange	0.2168
Yellow	0.1889
Purple	0.1816

A) Yes B) No

9) An unusual event is an event that has a 9) _____

A) Probability of 1 B) Low probability of occurrence

C) A negative probability D) Probability which exceeds 1

10) The table below represents a random sample of the number of deaths per 100 cases for a certain illness over time. If a person infected with this illness is randomly selected from all infected people, find the probability that the person lives 3–4 years after diagnosis. Express your answer as a simplified fraction and as a decimal. 10) _____

Years after Diagnosis	Number deaths
1–2	15
3–4	35
5–6	16
7–8	9
9–10	6
11–12	4
13–14	2
15+	13

A) $\frac{1}{35}$; 0.029 B) $\frac{35}{100}$; 0.35 C) $\frac{35}{65}$; 0.538 D) $\frac{7}{120}$; 0.058

11) A die is rolled. The set of equally likely outcomes is {1, 2, 3, 4, 5, 6}. Find the probability of getting a 2. 11) _____

A) 0 B) $\frac{1}{6}$ C) 2 D) $\frac{1}{3}$

12) A fair coin is tossed two times in succession. The set of equally likely outcomes is {HH, HT, TH, TT}. Find the probability of getting the same outcome on each toss. 12) _____

A) $\frac{3}{4}$ B) $\frac{1}{4}$ C) 1 D) $\frac{1}{2}$

13) A single die is rolled twice. The set of 36 equally likely outcomes is {(1, 1), (1, 2), (1, 3), (1, 4), (1, 5), (1, 6), (2, 1), (2, 2), (2, 3), (2, 4), (2, 5), (2, 6), (3, 1), (3, 2), (3, 3), (3, 4), (3, 5), (3, 6), (4, 1), (4, 2), (4, 3), (4, 4), (4, 5), (4, 6), (5, 1), (5, 2), (5, 3), (5, 4), (5, 5), (5, 6), (6, 1), (6, 2), (6, 3), (6, 4), (6, 5), (6, 6)}. Find the probability of getting two numbers whose sum is greater than 10. 13) _____

A) $\frac{1}{18}$ B) 3 C) $\frac{5}{18}$ D) $\frac{1}{12}$

14) A single die is rolled twice. The set of 36 equally likely outcomes is {(1, 1), (1, 2), (1, 3), (1, 4), (1, 5), (1, 6), (2, 1), (2, 2), (2, 3), (2, 4), (2, 5), (2, 6), (3, 1), (3, 2), (3, 3), (3, 4), (3, 5), (3, 6), (4, 1), (4, 2), (4, 3), (4, 4), (4, 5), (4, 6), (5, 1), (5, 2), (5, 3), (5, 4), (5, 5), (5, 6), (6, 1), (6, 2), (6, 3), (6, 4), (6, 5), (6, 6)}. Find the probability of getting two numbers whose sum is less than 13. 14) _____

A) $\frac{1}{2}$ B) $\frac{1}{4}$ C) 1 D) 0

15) Three fair coins are tossed in the air and land on a table. The up side of each coin is noted. How many elements are there in the sample space? 15) _____

A) 4 B) 6 C) 8 D) 3

16) In a survey of college students, 880 said that they have cheated on an exam and 1721 said that they have not. If one college student is selected at random, find the probability that the student has cheated on an exam. 16) _____

A) $\frac{880}{2601}$ B) $\frac{2601}{880}$ C) $\frac{1721}{2601}$ D) $\frac{2601}{1721}$

Answers for probability for problems on last two pages

1) B	**2) A**	**3) B**	**4) B**	**5) A**	**6) D**	**7) B**	**8) A**
9) B	**10) B**	**11) B**	**12) D**	**13) D**	**14) C**	**15) C**	**16) A**

Multiplication Rule

$$P(A \text{ and } B \text{ and } C \text{ and} \ldots) = P(A)P(B)P(C)\ldots$$

A. There are *14 large* and *6 medium* size T-shirts for sales. If 2 T-shirts are sold**,** then

1 Construct the *tree diagram* 2.Write all the possibilities
3. Compute all the probabilities 4. Construct Probability Distribution

P(LL) = 47.9%
P(LM) = 22.1%
P(ML) = 22.1%
P(MM) = 7.9% +

100%

After two T-shirts are drawn randomly then find the probability that,

P(Both Large) = 47.9% P(Both Medium) = 7.9%

P(At least one Medium) = 52.1% P(At most one Large) = 52.1%

B. In a box there are 14 Blue and 6 Red balls. If two balls are drawn at random **with replacement**, then

1. Construct the *tree diagram* 2.Write all the possibilities
3. Compute all the probabilities 4. Construct Probability Distribution

P(BB) = 49%
P(BR) = 21%
P(RB) = 21%
P(RR) = 9% +

100%

After two balls are drawn randomly then find the probability that,

P(Both Blue) = 49% P(Both Red) = 9%

P(At least one Red) = 51% P(At most one Red) = 91%