MULYA FAJAR NINGSIH ALWI
001202000101
IT 2020 CLASS 4

FINAL SEMESTER EXAMINATION / Project 2
Academic Year 2020 – 2021 / 1st Semester
Subject : Probability and Statistics
Lecturer : Zain Saifullah
Study Program: Information Technology
Date of Exam : January 6, 2021 and January 8, 2021

Instructions to Students

1. This examination consist of 4 pages and 4 questions
2. Due date of this examination is Friday January 15, 2021 23.59 PM
3. Sanctions will be given to those students who are not following the examination rules
4. All answers to be written directly following the questions **step by step** (detailed). The number to the corresponding question must be written correctly
5. This is a take home examination
6. Students are not allowed to communicate or to cooperate each other or copy someone's work while the examination is going on

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A. GENERAL

- **From Assignment 2, each asked question is a parameter statistics**
  For example if your question no 1 in assignment 2 related to the height of someone, so parameter 1 is height; if your question no 2 in assignment 2 related to the weight of someone, so parameter 2 is weight, and so on.

- **State (Write) clearly what is the parameters below** (you have 5 questions)

1. Paremeter 1: Height (cm)
2. Paremeter 2: Weight (kg)
3. Paremeter 3: Shoe Size
4. Paremeter 4: Number of Siblings
5. Paremeter 5: Time Spent Watching a Movie in One Day (hour)

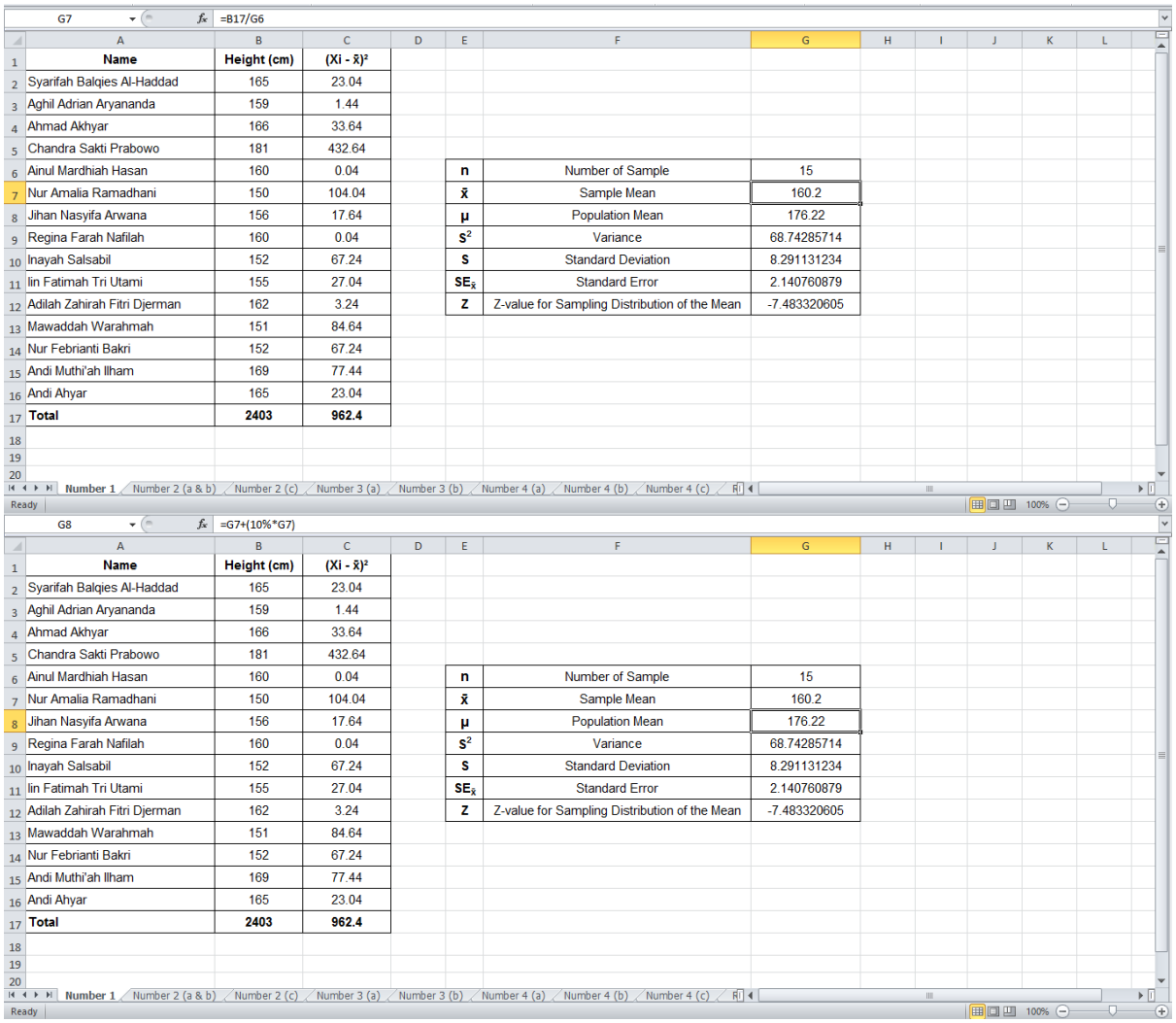
B. QUESTIONS

1. (10%)

Use **parameter 1** as a variable.

It is assumed the value of mean of population (μ) is 10% above of your average data (1.1 of X bar). Find the value of Z

ANSWERS:



G7 =B17/G6

	Name	Height (cm)	$(Xi - \bar{x})^2$
2	Syarifah Balqies Al-Haddad	165	23.04
3	Aghil Adrian Aryananda	159	1.44
4	Ahmad Akhyar	166	33.64
5	Chandra Sakti Prabowo	181	432.64
6	Ainul Mardhiah Hasan	160	0.04
7	Nur Amalia Ramadhani	150	104.04
8	Jihan Nasyifa Arwana	156	17.64
9	Regina Farah Nafilah	160	0.04
10	Inayah Salsabil	152	67.24
11	Iin Fatimah Tri Utami	155	27.04
12	Adilah Zahirah Fitri Djerman	162	3.24
13	Mawaddah Warahmah	151	84.64
14	Nur Febrianti Bakri	152	67.24
15	Andi Muthi'ah Ilham	169	77.44
16	Andi Ahyar	165	23.04
17	**Total**	**2403**	**962.4**

n	Number of Sample	15
$\bar{x}$	Sample Mean	160.2
μ	Population Mean	176.22
S^2	Variance	68.74285714
S	Standard Deviation	8.291131234
$SE_{\bar{x}}$	Standard Error	2.140760879
Z	Z-value for Sampling Distribution of the Mean	-7.483320605

Number 1 | Number 2 (a & b) | Number 2 (c) | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

Ready 100%

G8 =G7+(10%*G7)

	Name	Height (cm)	$(Xi - \bar{x})^2$
2	Syarifah Balqies Al-Haddad	165	23.04
3	Aghil Adrian Aryananda	159	1.44
4	Ahmad Akhyar	166	33.64
5	Chandra Sakti Prabowo	181	432.64
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7	Nur Amalia Ramadhani	150	104.04
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9	Regina Farah Nafilah	160	0.04
10	Inayah Salsabil	152	67.24
11	Iin Fatimah Tri Utami	155	27.04
12	Adilah Zahirah Fitri Djerman	162	3.24
13	Mawaddah Warahmah	151	84.64
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Number 1 | Number 2 (a & b) | Number 2 (c) | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

Ready 100%

G9 =C17/(G6-1)

	Name	Height (cm)	$(Xi - \bar{x})^2$
2	Syarifah Balqies Al-Haddad	165	23.04
3	Aghil Adrian Aryananda	159	1.44
4	Ahmad Akhyar	166	33.64
5	Chandra Sakti Prabowo	181	432.64
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8	Jihan Nasyifa Arwana	156	17.64
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S	Standard Deviation	8.291131234
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Number 1 | Number 2 (a & b) | Number 2 (c) | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

Ready 100%

G10 =SQRT(G9)

	Name	Height (cm)	$(Xi - \bar{x})^2$
2	Syarifah Balqies Al-Haddad	165	23.04
3	Aghil Adrian Aryananda	159	1.44
4	Ahmad Akhyar	166	33.64
5	Chandra Sakti Prabowo	181	432.64
6	Ainul Mardhiah Hasan	160	0.04
7	Nur Amalia Ramadhani	150	104.04
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S	Standard Deviation	8.291131234
$SE_{\bar{x}}$	Standard Error	2.140760879
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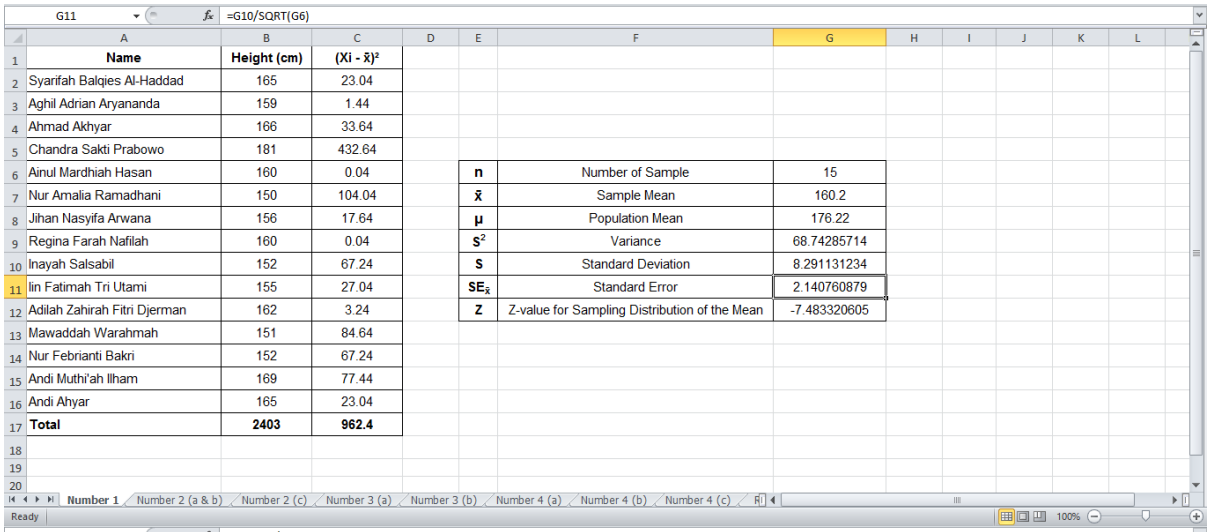
Ready 100%



G11 =G10/SQRT(G6)

	A	B	C	D	E	F	G	H	I	J	K	L
1	**Name**	**Height (cm)**	**(Xi - x̄)²**									
2	Syarifah Balqies Al-Haddad	165	23.04									
3	Aghil Adrian Aryananda	159	1.44									
4	Ahmad Akhyar	166	33.64									
5	Chandra Sakti Prabowo	181	432.64									
6	Ainul Mardhiah Hasan	160	0.04		**n**	Number of Sample	15					
7	Nur Amalia Ramadhani	150	104.04		**$\bar{x}$**	Sample Mean	160.2					
8	Jihan Nasyifa Arwana	156	17.64		**μ**	Population Mean	176.22					
9	Regina Farah Nafilah	160	0.04		**S^2**	Variance	68.74285714					
10	Inayah Salsabil	152	67.24		**S**	Standard Deviation	8.291131234					
11	Iin Fatimah Tri Utami	155	27.04		**$SE_{\bar{x}}$**	Standard Error	2.140760879					
12	Adilah Zahirah Fitri Djerman	162	3.24		**Z**	Z-value for Sampling Distribution of the Mean	-7.483320605					
13	Mawaddah Warahmah	151	84.64									
14	Nur Febrianti Bakri	152	67.24									
15	Andi Muthi'ah Ilham	169	77.44									
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17	**Total**	**2403**	**962.4**									
18												
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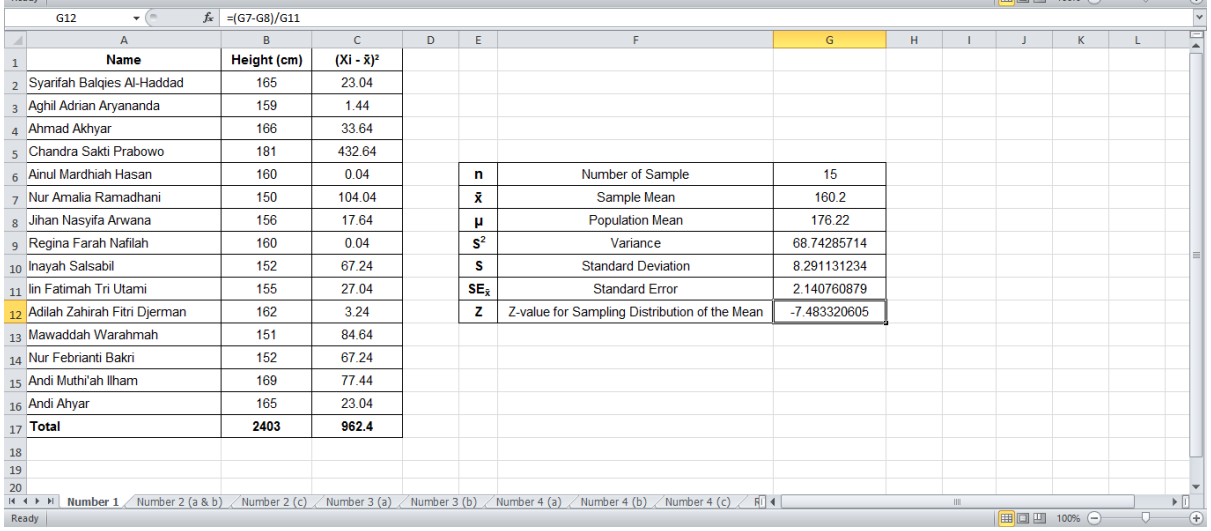
Ready 100%



G12 =(G7-G8)/G11

	A	B	C	D	E	F	G	H	I	J	K	L
1	**Name**	**Height (cm)**	**(Xi - x̄)²**									
2	Syarifah Balqies Al-Haddad	165	23.04									
3	Aghil Adrian Aryananda	159	1.44									
4	Ahmad Akhyar	166	33.64									
5	Chandra Sakti Prabowo	181	432.64									
6	Ainul Mardhiah Hasan	160	0.04		**n**	Number of Sample	15					
7	Nur Amalia Ramadhani	150	104.04		**$\bar{x}$**	Sample Mean	160.2					
8	Jihan Nasyifa Arwana	156	17.64		**μ**	Population Mean	176.22					
9	Regina Farah Nafilah	160	0.04		**S^2**	Variance	68.74285714					
10	Inayah Salsabil	152	67.24		**S**	Standard Deviation	8.291131234					
11	Iin Fatimah Tri Utami	155	27.04		**$SE_{\bar{x}}$**	Standard Error	2.140760879					
12	Adilah Zahirah Fitri Djerman	162	3.24		**Z**	Z-value for Sampling Distribution of the Mean	-7.483320605					
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17	**Total**	**2403**	**962.4**									
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Number 1 | Number 2 (a & b) | Number 2 (c) | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

Ready 100%

2. (35%)

a) Use **parameter 2** as a variable.
The Hypothesis:
H_0: $\mu = \ldots$ (fill in the …; but the value **must not the same** with the average of your data)
H_1: $\mu \neq \ldots$

Make the decision (based on your data) with $\alpha = 4\ \%$

b) The same question with no. 2 a) but using p-value and $\alpha = 6\ \%$

c) Use **parameter 3** as a variable and the Hypothesis is
H_0: $\mu \leq \ldots$ (fill in the …; but the value **must not the same** with the average of your data)
H_1: $\mu \geq \ldots$

ANSWERS:

a)

F4 =B17/F3

	Name	Weight (kg)	$(Xi - \bar{x})^2$
2	Syarifah Balqies Al-Haddad	98	1605.34
3	Aghil Adrian Aryananda	55	8.60444
4	Ahmad Akhyar	70	145.604
5	Chandra Sakti Prabowo	65	49.9378
6	Ainul Mardhiah Hasan	43	223.004
7	Nur Amalia Ramadhani	51	48.0711
8	Jihan Nasyifa Arwana	45	167.271
9	Regina Farah Nafilah	50	62.9378
10	Inayah Salsabil	39	358.471
11	Iin Fatimah Tri Utami	55	8.60444
12	Adilah Zahirah Fitri Djerman	75	291.271
13	Mawaddah Warahmah	44	194.138
14	Nur Febrianti Bakri	54	15.4711
15	Andi Muthi'ah Ilham	60	4.27111
16	Andi Ahyar	65	49.9378
17	**Total**	**869**	**3232.93**

Question (a)	
n (number of samples)	15
$\bar{X}$ (mean)	57.93333333
S (standard deviation sampling)	15.19617746
H_0 (null hypothesis)	$\mu = 45$
H_1 (alternate hypothesis)	$\mu \neq 45$
t-test	3.296262151
df (degrees of freedom)	14
α (level of significance (two-tails))	0.04
α (the value of each tail)	0.02
Critical Value (t-distribution table)	$\pm t_{14,0.02}$
	± 2.145
Conclusion for Question (a)	
Reject the null hypothesis	
t-test > critical value	3.296262151 **>** ± 2.145
The t-test statistic falls into the rejection region, so we reject the null hypothesis and we conclude there is sufficient evidence that the mean body weight of my high school friends is not equal to 45	

Question (b)	
t-test	3.296262151
df (degrees of freedom)	14
α (level of significance)	0.06
Left Tail	0.0025 < **area** < 0.0050
Right Tail	0.0025 < **area** < 0.0050
0.005 < **p-value** < 0.010	
p-value	0.005301568
Conclusion for Question (b)	
Reject the null hypothesis	
p-value < α	0.005301568 **<** 0.06
The p-value is less than alpha, so we reject the null hypothesis and we conclude there is sufficient evidence that the mean body weight of my high school friends is not equal to 45	

Number 1 | **Number 2 (a & b)** | Number 2 (c) | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

Ready 90%

F5 =SQRT(C17/(F3-1))

	Name	Weight (kg)	$(Xi - \bar{x})^2$
2	Syarifah Balqies Al-Haddad	98	1605.34
3	Aghil Adrian Aryananda	55	8.60444
4	Ahmad Akhyar	70	145.604
5	Chandra Sakti Prabowo	65	49.9378
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Number 1 | **Number 2 (a & b)** | Number 2 (c) | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

Ready 90%

F8 =(F4-45)/(F5/SQRT(F3))

Name	Weight (kg)	$(Xi - \bar{x})^2$
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p-value	0.005301568
Conclusion for Question (b)	
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The p-value is less than alpha, so we reject the null hypothesis and we conclude there is sufficient evidence that the mean body weight of my high school friends is not equal to 45	

Number 1 | **Number 2 (a & b)** | Number 2 (c) | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

Ready 90%

F9 =F3-1

Name	Weight (kg)	$(Xi - \bar{x})^2$
Syarifah Balqies Al-Haddad	98	1605.34
Aghil Adrian Aryananda	55	8.60444
Ahmad Akhyar	70	145.604
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Question (b)	
t-test	3.296262151
df (degrees of freedom)	14
α (level of significance)	0.06
Left Tail	0.0025 < **area** < 0.0050
Right Tail	0.0025 < **area** < 0.0050
0.005 < **p-value** < 0.010	
p-value	0.005301568
Conclusion for Question (b)	
Reject the null hypothesis	
p-value < α	0.005301568 **<** 0.06
The p-value is less than alpha, so we reject the null hypothesis and we conclude there is sufficient evidence that the mean body weight of my high school friends is not equal to 45	

Number 1 | **Number 2 (a & b)** | Number 2 (c) | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

Ready 90%

F11 =F10/2

	Name	Weight (kg)	$(Xi - \bar{x})^2$
2	Syarifah Balqies Al-Haddad	98	1605.34
3	Aghil Adrian Aryananda	55	8.60444
4	Ahmad Akhyar	70	145.604
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t-test	3.296262151
df (degrees of freedom)	14
α (level of significance (two-tails))	0.04
α (the value of each tail)	0.02
Critical Value (t-distribution table)	$\pm t_{14,0.02}$
	± 2.145

Conclusion for Question (a)

Reject the null hypothesis

t-test > critical value 3.296262151 **>** ± 2.145

The t-test statistic falls into the rejection region, so we reject the null hypothesis and we conclude there is sufficient evidence that the mean body weight of my high school friends is not equal to 45

Question (b)

t-test	3.296262151
df (degrees of freedom)	14
α (level of significance)	0.06
Left Tail	0.0025 < **area** < 0.0050
Right Tail	0.0025 < **area** < 0.0050
0.005 < **p-value** < 0.010	
p-value	0.005301568

Conclusion for Question (b)

Reject the null hypothesis

p-value < α 0.005301568 **<** 0.06

The p-value is less than alpha, so we reject the null hypothesis and we conclude there is sufficient evidence that the mean body weight of my high school friends is not equal to 45

Number 1 | **Number 2 (a & b)** | Number 2 (c) | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

Ready 90%

E15 =IF(F8<F13,"Reject the null hypothesis","Do not Reject the null hypothesis")

	Name	Weight (kg)	$(Xi - \bar{x})^2$
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3	Aghil Adrian Aryananda	55	8.60444
4	Ahmad Akhyar	70	145.604
5	Chandra Sakti Prabowo	65	49.9378
6	Ainul Mardhiah Hasan	43	223.004
7	Nur Amalia Ramadhani	51	48.0711
8	Jihan Nasyifa Arwana	45	167.271
9	Regina Farah Nafilah	50	62.9378
10	Inayah Salsabil	39	358.471
11	Iin Fatimah Tri Utami	55	8.60444
12	Adilah Zahirah Fitri Djerman	75	291.271
13	Mawaddah Warahmah	44	194.138
14	Nur Febrianti Bakri	54	15.4711
15	Andi Muthi'ah Ilham	60	4.27111
16	Andi Ahyar	65	49.9378
17	**Total**	**869**	**3232.93**

Question (a)

n (number of samples)	15
$\bar{X}$ (mean)	57.93333333
S (standard deviation sampling)	15.19617746
H_0 (null hypothesis)	$\mu = 45$
H_1 (alternate hypothesis)	$\mu \neq 45$
t-test	3.296262151
df (degrees of freedom)	14
α (level of significance (two-tails))	0.04
α (the value of each tail)	0.02
Critical Value (t-distribution table)	$\pm t_{14,0.02}$
	± 2.145

Conclusion for Question (a)

Reject the null hypothesis

t-test > critical value 3.296262151 **>** ± 2.145

The t-test statistic falls into the rejection region, so we reject the null hypothesis and we conclude there is sufficient evidence that the mean body weight of my high school friends is not equal to 45

Question (b)

t-test	3.296262151
df (degrees of freedom)	14
α (level of significance)	0.06
Left Tail	0.0025 < **area** < 0.0050
Right Tail	0.0025 < **area** < 0.0050
0.005 < **p-value** < 0.010	
p-value	0.005301568

Conclusion for Question (b)

Reject the null hypothesis

p-value < α 0.005301568 **<** 0.06

The p-value is less than alpha, so we reject the null hypothesis and we conclude there is sufficient evidence that the mean body weight of my high school friends is not equal to 45

Number 1 | **Number 2 (a & b)** | Number 2 (c) | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

Ready 90%

b)

I3 =(F4-45)/(F5/SQRT(F3))

Name	Weight (kg)	$(Xi - \bar{x})^2$
Syarifah Balqies Al-Haddad	98	1605.34
Aghil Adrian Aryananda	55	8.60444
Ahmad Akhyar	70	145.604
Chandra Sakti Prabowo	65	49.9378
Ainul Mardhiah Hasan	43	223.004
Nur Amalia Ramadhani	51	48.0711
Jihan Nasyifa Arwana	45	167.271
Regina Farah Nafilah	50	62.9378
Inayah Salsabil	39	358.471
Iin Fatimah Tri Utami	55	8.60444
Adilah Zahirah Fitri Djerman	75	291.271
Mawaddah Warahmah	44	194.138
Nur Febrianti Bakri	54	15.4711
Andi Muthi'ah Ilham	60	4.27111
Andi Ahyar	65	49.9378
Total	**869**	**3232.93**

Question (a)	
n (number of samples)	15
$\bar{x}$ (mean)	57.93333333
S (standard deviation sampling)	15.19617746
H_0 (null hypothesis)	$\mu = 45$
H_1 (alternate hypothesis)	$\mu \neq 45$
t-test	3.296262151
df (degrees of freedom)	14
α (level of significance (two-tails))	0.04
α (the value of each tail)	0.02
Critical Value (t-distribution table)	$\pm t_{14,0.02}$
	± 2.145
Conclusion for Question (a)	
Reject the null hypothesis	
t-test > critical value	3.296262151 **>** ± 2.145
The t-test statistic falls into the rejection region, so we reject the null hypothesis and we conclude there is sufficient evidence that the mean body weight of my high school friends is not equal to 45	

Question (b)	
t-test	3.296262151
df (degrees of freedom)	14
α (level of significance)	0.06
Left Tail	0.0025 < **area** < 0.0050
Right Tail	0.0025 < **area** < 0.0050
0.005 < **p-value** < 0.010	
p-value	0.005301568
Conclusion for Question (b)	
Reject the null hypothesis	
p-value < α	0.005301568 **<** 0.06
The p-value is less than alpha, so we reject the null hypothesis and we conclude there is sufficient evidence that the mean body weight of my high school friends is not equal to 45	

Number 1 | **Number 2 (a & b)** | Number 2 (c) | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

Ready 90%

I4 =F3-1

Name	Weight (kg)	$(Xi - \bar{x})^2$
Syarifah Balqies Al-Haddad	98	1605.34
Aghil Adrian Aryananda	55	8.60444
Ahmad Akhyar	70	145.604
Chandra Sakti Prabowo	65	49.9378
Ainul Mardhiah Hasan	43	223.004
Nur Amalia Ramadhani	51	48.0711
Jihan Nasyifa Arwana	45	167.271
Regina Farah Nafilah	50	62.9378
Inayah Salsabil	39	358.471
Iin Fatimah Tri Utami	55	8.60444
Adilah Zahirah Fitri Djerman	75	291.271
Mawaddah Warahmah	44	194.138
Nur Febrianti Bakri	54	15.4711
Andi Muthi'ah Ilham	60	4.27111
Andi Ahyar	65	49.9378
Total	**869**	**3232.93**

Question (a)	
n (number of samples)	15
$\bar{x}$ (mean)	57.93333333
S (standard deviation sampling)	15.19617746
H_0 (null hypothesis)	$\mu = 45$
H_1 (alternate hypothesis)	$\mu \neq 45$
t-test	3.296262151
df (degrees of freedom)	14
α (level of significance (two-tails))	0.04
α (the value of each tail)	0.02
Critical Value (t-distribution table)	$\pm t_{14,0.02}$
	± 2.145
Conclusion for Question (a)	
Reject the null hypothesis	
t-test > critical value	3.296262151 **>** ± 2.145
The t-test statistic falls into the rejection region, so we reject the null hypothesis and we conclude there is sufficient evidence that the mean body weight of my high school friends is not equal to 45	

Question (b)	
t-test	3.296262151
df (degrees of freedom)	14
α (level of significance)	0.06
Left Tail	0.0025 < **area** < 0.0050
Right Tail	0.0025 < **area** < 0.0050
0.005 < **p-value** < 0.010	
p-value	0.005301568
Conclusion for Question (b)	
Reject the null hypothesis	
p-value < α	0.005301568 **<** 0.06
The p-value is less than alpha, so we reject the null hypothesis and we conclude there is sufficient evidence that the mean body weight of my high school friends is not equal to 45	

Number 1 | **Number 2 (a & b)** | Number 2 (c) | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

Ready 90%

I9 =T.DIST.2T(I3,I4)

Name	Weight (kg)	$(Xi - \bar{x})^2$
Syarifah Balqies Al-Haddad	98	1605.34
Aghil Adrian Aryananda	55	8.60444
Ahmad Akhyar	70	145.604
Chandra Sakti Prabowo	65	49.9378
Ainul Mardhiah Hasan	43	223.004
Nur Amalia Ramadhani	51	48.0711
Jihan Nasyifa Arwana	45	167.271
Regina Farah Nafilah	50	62.9378
Inayah Salsabil	39	358.471
Iin Fatimah Tri Utami	55	8.60444
Adilah Zahirah Fitri Djerman	75	291.271
Mawaddah Warahmah	44	194.138
Nur Febrianti Bakri	54	15.4711
Andi Muthi'ah Ilham	60	4.27111
Andi Ahyar	65	49.9378
Total	**869**	**3232.93**

Question (a)	
n (number of samples)	15
$\bar{X}$ (mean)	57.93333333
S (standard deviation sampling)	15.19617746
H_0 (null hypothesis)	$\mu = 45$
H_1 (alternate hypothesis)	$\mu \neq 45$
t-test	3.296262151
df (degrees of freedom)	14
α (level of significance (two-tails))	0.04
α (the value of each tail)	0.02
Critical Value (t-distribution table)	$\pm t_{14,0.02}$
	± 2.145
Conclusion for Question (a)	
Reject the null hypothesis	
t-test > critical value	3.296262151 **>** ± 2.145
The t-test statistic falls into the rejection region, so we reject the null hypothesis and we conclude there is sufficient evidence that the mean body weight of my high school friends is not equal to 45	

Question (b)	
t-test	3.296262151
df (degrees of freedom)	14
α (level of significance)	0.06
Left Tail	0.0025 < **area** < 0.0050
Right Tail	0.0025 < **area** < 0.0050
0.005 < **p-value** < 0.010	
p-value	0.005301568
Conclusion for Question (b)	
Reject the null hypothesis	
p-value < α	0.005301568 **<** 0.06
The p-value is less than alpha, so we reject the null hypothesis and we conclude there is sufficient evidence that the mean body weight of my high school friends is not equal to 45	

Number 1 | **Number 2 (a & b)** | Number 2 (c) | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

Ready 90%

H11 =IF(I9<I5,"Reject the null hypothesis","Do not Reject the null hypothesis")

Name	Weight (kg)	$(Xi - \bar{x})^2$
Syarifah Balqies Al-Haddad	98	1605.34
Aghil Adrian Aryananda	55	8.60444
Ahmad Akhyar	70	145.604
Chandra Sakti Prabowo	65	49.9378
Ainul Mardhiah Hasan	43	223.004
Nur Amalia Ramadhani	51	48.0711
Jihan Nasyifa Arwana	45	167.271
Regina Farah Nafilah	50	62.9378
Inayah Salsabil	39	358.471
Iin Fatimah Tri Utami	55	8.60444
Adilah Zahirah Fitri Djerman	75	291.271
Mawaddah Warahmah	44	194.138
Nur Febrianti Bakri	54	15.4711
Andi Muthi'ah Ilham	60	4.27111
Andi Ahyar	65	49.9378
Total	**869**	**3232.93**

Question (a)	
n (number of samples)	15
$\bar{X}$ (mean)	57.93333333
S (standard deviation sampling)	15.19617746
H_0 (null hypothesis)	$\mu = 45$
H_1 (alternate hypothesis)	$\mu \neq 45$
t-test	3.296262151
df (degrees of freedom)	14
α (level of significance (two-tails))	0.04
α (the value of each tail)	0.02
Critical Value (t-distribution table)	$\pm t_{14,0.02}$
	± 2.145
Conclusion for Question (a)	
Reject the null hypothesis	
t-test > critical value	3.296262151 **>** ± 2.145
The t-test statistic falls into the rejection region, so we reject the null hypothesis and we conclude there is sufficient evidence that the mean body weight of my high school friends is not equal to 45	

Question (b)	
t-test	3.296262151
df (degrees of freedom)	14
α (level of significance)	0.06
Left Tail	0.0025 < **area** < 0.0050
Right Tail	0.0025 < **area** < 0.0050
0.005 < **p-value** < 0.010	
p-value	0.005301568
Conclusion for Question (b)	
Reject the null hypothesis	
p-value < α	0.005301568 **<** 0.06
The p-value is less than alpha, so we reject the null hypothesis and we conclude there is sufficient evidence that the mean body weight of my high school friends is not equal to 45	

Number 1 | **Number 2 (a & b)** | Number 2 (c) | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

Ready 90%

c)

F4 =B17/F3

	Name	Shoe Size	(Xi - x̄)²
2	Syarifah Balqies Al-Haddad	41	1.44
3	Aghil Adrian Aryananda	41	1.44
4	Ahmad Akhyar	41	1.44
5	Chandra Sakti Prabowo	46	38.44
6	Ainul Mardhiah Hasan	39	0.64
7	Nur Amalia Ramadhani	37	7.84
8	Jihan Nasyifa Arwana	38	3.24
9	Regina Farah Nafilah	38	3.24
10	Inayah Salsabil	38	3.24
11	Iin Fatimah Tri Utami	38	3.24
12	Adilah Zahirah Fitri Djerman	41	1.44
13	Mawaddah Warahmah	37	7.84
14	Nur Febrianti Bakri	39	0.64
15	Andi Muthi'ah Ilham	40	0.04
16	Andi Ahyar	43	10.24
17	**Total**	**597**	**84.4**

Question (c)	
n (number of samples)	15
$\bar{X}$ (mean)	39.8
S (standard deviation sampling)	2.455314935
H_0 (null hypothesis)	$\mu \leq 38$
H_1 (alternate hypothesis)	$\mu \geq 38$
t-test	2.83929769
df (degrees of freedom)	14
α (level of significance (one-tail))	0.10
Critical Value (t-distribution table)	$t_{14,0.10}$
	1.345
Conclusion for Question (c)	
Reject the null hypothesis	
t-test > critical value	2.83929769 > 1.345
The t-test statistic falls into the rejection region, so we reject the null hypothesis and we conclude there is sufficient evidence that the mean shoe size of my high school friends is greater than 38	

Number 1 | Number 2 (a & b) | **Number 2 (c)** | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

Ready 100%

F5 =SQRT(C17/(F3-1))

	Name	Shoe Size	(Xi - x̄)²
2	Syarifah Balqies Al-Haddad	41	1.44
3	Aghil Adrian Aryananda	41	1.44
4	Ahmad Akhyar	41	1.44
5	Chandra Sakti Prabowo	46	38.44
6	Ainul Mardhiah Hasan	39	0.64
7	Nur Amalia Ramadhani	37	7.84
8	Jihan Nasyifa Arwana	38	3.24
9	Regina Farah Nafilah	38	3.24
10	Inayah Salsabil	38	3.24
11	Iin Fatimah Tri Utami	38	3.24
12	Adilah Zahirah Fitri Djerman	41	1.44
13	Mawaddah Warahmah	37	7.84
14	Nur Febrianti Bakri	39	0.64
15	Andi Muthi'ah Ilham	40	0.04
16	Andi Ahyar	43	10.24
17	**Total**	**597**	**84.4**

Question (c)	
n (number of samples)	15
$\bar{X}$ (mean)	39.8
S (standard deviation sampling)	2.455314935
H_0 (null hypothesis)	$\mu \leq 38$
H_1 (alternate hypothesis)	$\mu \geq 38$
t-test	2.83929769
df (degrees of freedom)	14
α (level of significance (one-tail))	0.10
Critical Value (t-distribution table)	$t_{14,0.10}$
	1.345
Conclusion for Question (c)	
Reject the null hypothesis	
t-test > critical value	2.83929769 > 1.345
The t-test statistic falls into the rejection region, so we reject the null hypothesis and we conclude there is sufficient evidence that the mean shoe size of my high school friends is greater than 38	

Number 1 | Number 2 (a & b) | **Number 2 (c)** | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

Ready 100%

F8 =(F4-38)/(F5/SQRT(F3))

	Name	Shoe Size	(Xi - x̄)²
2	Syarifah Balqies Al-Haddad	41	1.44
3	Aghil Adrian Aryananda	41	1.44
4	Ahmad Akhyar	41	1.44
5	Chandra Sakti Prabowo	46	38.44
6	Ainul Mardhiah Hasan	39	0.64
7	Nur Amalia Ramadhani	37	7.84
8	Jihan Nasyifa Arwana	38	3.24
9	Regina Farah Nafilah	38	3.24
10	Inayah Salsabil	38	3.24
11	Iin Fatimah Tri Utami	38	3.24
12	Adilah Zahirah Fitri Djerman	41	1.44
13	Mawaddah Warahmah	37	7.84
14	Nur Febrianti Bakri	39	0.64
15	Andi Muthi'ah Ilham	40	0.04
16	Andi Ahyar	43	10.24
17	**Total**	**597**	**84.4**

Question (c)	
n (number of samples)	15
$\bar{X}$ (mean)	39.8
S (standard deviation sampling)	2.455314935
H_0 (null hypothesis)	$\mu \leq 38$
H_1 (alternate hypothesis)	$\mu \geq 38$
t-test	2.83929769
df (degrees of freedom)	14
α (level of significance (one-tail))	0.10
Critical Value (t-distribution table)	$t_{14,0.10}$
	1.345
Conclusion for Question (c)	
Reject the null hypothesis	
t-test > critical value	2.83929769 > 1.345
The t-test statistic falls into the rejection region, so we reject the null hypothesis and we conclude there is sufficient evidence that the mean shoe size of my high school friends is greater than 38	

Number 1 | Number 2 (a & b) | **Number 2 (c)** | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

Ready 100%

F9 =F3-1

	Name	Shoe Size	(Xi - x̄)²
2	Syarifah Balqies Al-Haddad	41	1.44
3	Aghil Adrian Aryananda	41	1.44
4	Ahmad Akhyar	41	1.44
5	Chandra Sakti Prabowo	46	38.44
6	Ainul Mardhiah Hasan	39	0.64
7	Nur Amalia Ramadhani	37	7.84
8	Jihan Nasyifa Arwana	38	3.24
9	Regina Farah Nafilah	38	3.24
10	Inayah Salsabil	38	3.24
11	Iin Fatimah Tri Utami	38	3.24
12	Adilah Zahirah Fitri Djerman	41	1.44
13	Mawaddah Warahmah	37	7.84
14	Nur Febrianti Bakri	39	0.64
15	Andi Muthi'ah Ilham	40	0.04
16	Andi Ahyar	43	10.24
17	**Total**	**597**	**84.4**

Question (c)	
n (number of samples)	15
$\bar{X}$ (mean)	39.8
S (standard deviation sampling)	2.455314935
H_0 (null hypothesis)	$\mu \leq 38$
H_1 (alternate hypothesis)	$\mu \geq 38$
t-test	2.83929769
df (degrees of freedom)	14
α (level of significance (one-tail))	0.10
Critical Value (t-distribution table)	$t_{14,0.10}$
	1.345
Conclusion for Question (c)	
Reject the null hypothesis	
t-test > critical value	2.83929769 > 1.345
The t-test statistic falls into the rejection region, so we reject the null hypothesis and we conclude there is sufficient evidence that the mean shoe size of my high school friends is greater than 38	

Number 1 / Number 2 (a & b) / **Number 2 (c)** / Number 3 (a) / Number 3 (b) / Number 4 (a) / Number 4 (b) / Number 4 (c)

Ready 100%

E14 =IF(F8>F12,"Reject the null hypothesis","Do not Reject the null hypothesis")

	Name	Shoe Size	(Xi - x̄)²
2	Syarifah Balqies Al-Haddad	41	1.44
3	Aghil Adrian Aryananda	41	1.44
4	Ahmad Akhyar	41	1.44
5	Chandra Sakti Prabowo	46	38.44
6	Ainul Mardhiah Hasan	39	0.64
7	Nur Amalia Ramadhani	37	7.84
8	Jihan Nasyifa Arwana	38	3.24
9	Regina Farah Nafilah	38	3.24
10	Inayah Salsabil	38	3.24
11	Iin Fatimah Tri Utami	38	3.24
12	Adilah Zahirah Fitri Djerman	41	1.44
13	Mawaddah Warahmah	37	7.84
14	Nur Febrianti Bakri	39	0.64
15	Andi Muthi'ah Ilham	40	0.04
16	Andi Ahyar	43	10.24
17	**Total**	**597**	**84.4**

Question (c)	
n (number of samples)	15
$\bar{X}$ (mean)	39.8
S (standard deviation sampling)	2.455314935
H_0 (null hypothesis)	$\mu \leq 38$
H_1 (alternate hypothesis)	$\mu \geq 38$
t-test	2.83929769
df (degrees of freedom)	14
α (level of significance (one-tail))	0.10
Critical Value (t-distribution table)	$t_{14,0.10}$
	1.345
Conclusion for Question (c)	
Reject the null hypothesis	
t-test > critical value	2.83929769 > 1.345
The t-test statistic falls into the rejection region, so we reject the null hypothesis and we conclude there is sufficient evidence that the mean shoe size of my high school friends is greater than 38	

Number 1 / Number 2 (a & b) / **Number 2 (c)** / Number 3 (a) / Number 3 (b) / Number 4 (a) / Number 4 (b) / Number 4 (c)

Ready 100%

3. (20 %)

a) Use **parameter 3 and 4**.
Plot the data using scatter plot; determine the value of covariance; and give comments on the value of covariance

b) Use **parameter 4 and the age of respondent**.
Plot the data using scatter plot; determine the value of coefficient of correlation; and give comments on the value of coefficient of correlation

ANSWERS:

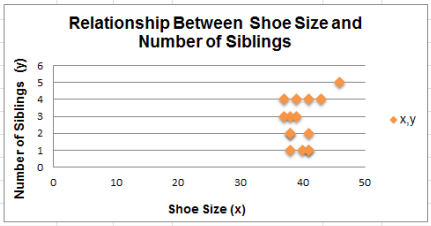
a)

F2 =B18/F1

Name	Shoe Size (X)	Number of Siblings (Y)
Syarifah Balqies Al-Haddad	41	1
Aghil Adrian Aryananda	41	2
Ahmad Akhyar	41	4
Chandra Sakti Prabowo	46	5
Ainul Mardhiah Hasan	39	4
Nur Amalia Ramadhani	37	4
Jihan Nasyifa Arwana	38	2
Regina Farah Nafilah	38	1
Inayah Salsabil	38	2
Iin Fatimah Tri Utami	38	3
Adilah Zahirah Fitri Djerman	41	1
Mawaddah Warahmah	37	3
Nur Febrianti Bakri	39	3
Andi Muthi'ah Ilham	40	1
Andi Ahyar	43	4
Total	**597**	**40**

n	15	$(X_i - \bar{X}) . (Y_i - \bar{Y})$	14	
$\bar{X}$	39.8	Sample Covariance	1	
$\bar{Y}$	2.67	Population Covariance	0.93	

Based on the covariance value obtained, the relationship between the two variables is almost unrelated or the relationship between the two variables is very weak because the value of the covariance is very small, even almost close to zero regardless of the positive or negative value of the covariance. In addition, visually through the scatter plot, it can also be seen that the two variables are not related to each other because there are no linear lines on the scatter plot.



X	Y	$(X_i - \bar{X})$	$(Y_i - \bar{Y})$	$(X_i - \bar{X}) . (Y_i - \bar{Y})$
41	1	1.2	-1.67	-2.00
41	2	1.2	-0.67	-0.80
41	4	1.2	1.33	1.60
46	5	6.2	2.33	14.47
39	4	-0.8	1.33	-1.07
37	4	-2.8	1.33	-3.73
38	2	-1.8	-0.67	1.20
38	1	-1.8	-1.67	3.00
38	2	-1.8	-0.67	1.20
38	3	-1.8	0.33	-0.60
41	1	1.2	-1.67	-2.00
37	3	-2.8	0.33	-0.93
39	3	-0.8	0.33	-0.27
40	1	0.2	-1.67	-0.33
43	4	3.2	1.33	4.27
Total				**14**

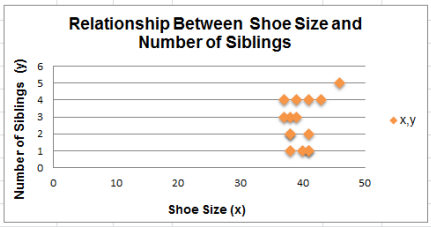
Number 1 | Number 2 (a & b) | Number 2 (c) | **Number 3 (a)** | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c) — Ready — 100%

F3 =C18/F1

Name	Shoe Size (X)	Number of Siblings (Y)
Syarifah Balqies Al-Haddad	41	1
Aghil Adrian Aryananda	41	2
Ahmad Akhyar	41	4
Chandra Sakti Prabowo	46	5
Ainul Mardhiah Hasan	39	4
Nur Amalia Ramadhani	37	4
Jihan Nasyifa Arwana	38	2
Regina Farah Nafilah	38	1
Inayah Salsabil	38	2
Iin Fatimah Tri Utami	38	3
Adilah Zahirah Fitri Djerman	41	1
Mawaddah Warahmah	37	3
Nur Febrianti Bakri	39	3
Andi Muthi'ah Ilham	40	1
Andi Ahyar	43	4
Total	**597**	**40**

n	15	$(X_i - \bar{X}) . (Y_i - \bar{Y})$	14	
$\bar{X}$	39.8	Sample Covariance	1	
$\bar{Y}$	2.67	Population Covariance	0.93	

Based on the covariance value obtained, the relationship between the two variables is almost unrelated or the relationship between the two variables is very weak because the value of the covariance is very small, even almost close to zero regardless of the positive or negative value of the covariance. In addition, visually through the scatter plot, it can also be seen that the two variables are not related to each other because there are no linear lines on the scatter plot.



X	Y	$(X_i - \bar{X})$	$(Y_i - \bar{Y})$	$(X_i - \bar{X}) . (Y_i - \bar{Y})$
41	1	1.2	-1.67	-2.00
41	2	1.2	-0.67	-0.80
41	4	1.2	1.33	1.60
46	5	6.2	2.33	14.47
39	4	-0.8	1.33	-1.07
37	4	-2.8	1.33	-3.73
38	2	-1.8	-0.67	1.20
38	1	-1.8	-1.67	3.00
38	2	-1.8	-0.67	1.20
38	3	-1.8	0.33	-0.60
41	1	1.2	-1.67	-2.00
37	3	-2.8	0.33	-0.93
39	3	-0.8	0.33	-0.27
40	1	0.2	-1.67	-0.33
43	4	3.2	1.33	4.27
Total				**14**

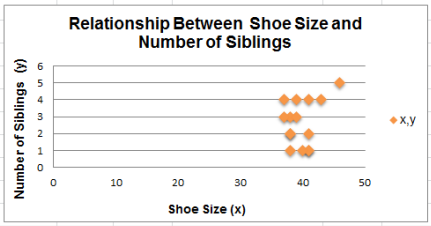
Number 1 | Number 2 (a & b) | Number 2 (c) | **Number 3 (a)** | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c) — Ready — 100%

H1 =SUM(N2:N16)

Name	Shoe Size (X)	Number of Siblings (Y)
Syarifah Balqies Al-Haddad	41	1
Aghil Adrian Aryananda	41	2
Ahmad Akhyar	41	4
Chandra Sakti Prabowo	46	5
Ainul Mardhiah Hasan	39	4
Nur Amalia Ramadhani	37	4
Jihan Nasyifa Arwana	38	2
Regina Farah Nafilah	38	1
Inayah Salsabil	38	2
Iin Fatimah Tri Utami	38	3
Adilah Zahirah Fitri Djerman	41	1
Mawaddah Warahmah	37	3
Nur Febrianti Bakri	39	3
Andi Muthi'ah Ilham	40	1
Andi Ahyar	43	4
Total	**597**	**40**

n	15	$(X_i - \bar{X}) . (Y_i - \bar{Y})$	14
$\bar{X}$	39.8	**Sample Covariance**	1
$\bar{Y}$	2.67	**Population Covariance**	0.93

Based on the covariance value obtained, the relationship between the two variables is almost unrelated or the relationship between the two variables is very weak because the value of the covariance is very small, even almost close to zero regardless of the positive or negative value of the covariance. In addition, visually through the scatter plot, it can also be seen that the two variables are not related to each other because there are no linear lines on the scatter plot.



X	Y	$(X_i - \bar{X})$	$(Y_i - \bar{Y})$	$(X_i - \bar{X}) . (Y_i - \bar{Y})$
41	1	1.2	-1.67	-2.00
41	2	1.2	-0.67	-0.80
41	4	1.2	1.33	1.60
46	5	6.2	2.33	14.47
39	4	-0.8	1.33	-1.07
37	4	-2.8	1.33	-3.73
38	2	-1.8	-0.67	1.20
38	1	-1.8	-1.67	3.00
38	2	-1.8	-0.67	1.20
38	3	-1.8	0.33	-0.60
41	1	1.2	-1.67	-2.00
37	3	-2.8	0.33	-0.93
39	3	-0.8	0.33	-0.27
40	1	0.2	-1.67	-0.33
43	4	3.2	1.33	4.27
Total				**14**

Number 1 | Number 2 (a & b) | Number 2 (c) | **Number 3 (a)** | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

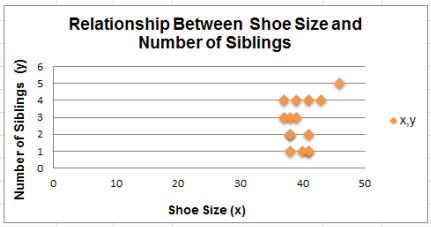
Ready 100%

H2 =H1/(F1-1)

Name	Shoe Size (X)	Number of Siblings (Y)
Syarifah Balqies Al-Haddad	41	1
Aghil Adrian Aryananda	41	2
Ahmad Akhyar	41	4
Chandra Sakti Prabowo	46	5
Ainul Mardhiah Hasan	39	4
Nur Amalia Ramadhani	37	4
Jihan Nasyifa Arwana	38	2
Regina Farah Nafilah	38	1
Inayah Salsabil	38	2
Iin Fatimah Tri Utami	38	3
Adilah Zahirah Fitri Djerman	41	1
Mawaddah Warahmah	37	3
Nur Febrianti Bakri	39	3
Andi Muthi'ah Ilham	40	1
Andi Ahyar	43	4
Total	**597**	**40**

n	15	$(X_i - \bar{X}) . (Y_i - \bar{Y})$	14
$\bar{X}$	39.8	**Sample Covariance**	1
$\bar{Y}$	2.67	**Population Covariance**	0.93

Based on the covariance value obtained, the relationship between the two variables is almost unrelated or the relationship between the two variables is very weak because the value of the covariance is very small, even almost close to zero regardless of the positive or negative value of the covariance. In addition, visually through the scatter plot, it can also be seen that the two variables are not related to each other because there are no linear lines on the scatter plot.



X	Y	$(X_i - \bar{X})$	$(Y_i - \bar{Y})$	$(X_i - \bar{X}) . (Y_i - \bar{Y})$
41	1	1.2	-1.67	-2.00
41	2	1.2	-0.67	-0.80
41	4	1.2	1.33	1.60
46	5	6.2	2.33	14.47
39	4	-0.8	1.33	-1.07
37	4	-2.8	1.33	-3.73
38	2	-1.8	-0.67	1.20
38	1	-1.8	-1.67	3.00
38	2	-1.8	-0.67	1.20
38	3	-1.8	0.33	-0.60
41	1	1.2	-1.67	-2.00
37	3	-2.8	0.33	-0.93
39	3	-0.8	0.33	-0.27
40	1	0.2	-1.67	-0.33
43	4	3.2	1.33	4.27
Total				**14**

Number 1 | Number 2 (a & b) | Number 2 (c) | **Number 3 (a)** | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

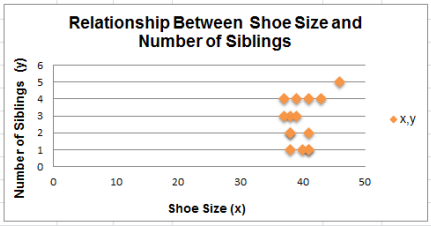
Ready 100%

H3 =H1/F1

Name	Shoe Size (X)	Number of Siblings (Y)
Syarifah Balqies Al-Haddad	41	1
Aghil Adrian Aryananda	41	2
Ahmad Akhyar	41	4
Chandra Sakti Prabowo	46	5
Ainul Mardhiah Hasan	39	4
Nur Amalia Ramadhani	37	4
Jihan Nasyifa Arwana	38	2
Regina Farah Nafilah	38	1
Inayah Salsabil	38	2
Iin Fatimah Tri Utami	38	3
Adilah Zahirah Fitri Djerman	41	1
Mawaddah Warahmah	37	3
Nur Febrianti Bakri	39	3
Andi Muthi'ah Ilham	40	1
Andi Ahyar	43	4
Total	**597**	**40**

n	15	$(X_i - \bar{X}) . (Y_i - \bar{Y})$	14
$\bar{X}$	39.8	**Sample Covariance**	1
$\bar{Y}$	2.67	**Population Covariance**	0.93

Based on the covariance value obtained, the relationship between the two variables is almost unrelated or the relationship between the two variables is very weak because the value of the covariance is very small, even almost close to zero regardless of the positive or negative value of the covariance. In addition, visually through the scatter plot, it can also be seen that the two variables are not related to each other because there are no linear lines on the scatter plot.



X	Y	$(X_i - \bar{X})$	$(Y_i - \bar{Y})$	$(X_i - \bar{X}) . (Y_i - \bar{Y})$
41	1	1.2	-1.67	-2.00
41	2	1.2	-0.67	-0.80
41	4	1.2	1.33	1.60
46	5	6.2	2.33	14.47
39	4	-0.8	1.33	-1.07
37	4	-2.8	1.33	-3.73
38	2	-1.8	-0.67	1.20
38	1	-1.8	-1.67	3.00
38	2	-1.8	-0.67	1.20
38	3	-1.8	0.33	-0.60
41	1	1.2	-1.67	-2.00
37	3	-2.8	0.33	-0.93
39	3	-0.8	0.33	-0.27
40	1	0.2	-1.67	-0.33
43	4	3.2	1.33	4.27
Total				**14**

Number 1 | Number 2 (a & b) | Number 2 (c) | **Number 3 (a)** | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

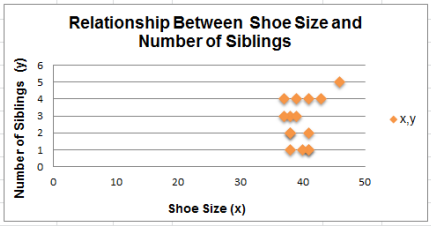
Ready 100%

L2 | =J2-F2

Name	Shoe Size (X)	Number of Siblings (Y)
Syarifah Balqies Al-Haddad	41	1
Aghil Adrian Aryananda	41	2
Ahmad Akhyar	41	4
Chandra Sakti Prabowo	46	5
Ainul Mardhiah Hasan	39	4
Nur Amalia Ramadhani	37	4
Jihan Nasyifa Arwana	38	2
Regina Farah Nafilah	38	1
Inayah Salsabil	38	2
Iin Fatimah Tri Utami	38	3
Adilah Zahirah Fitri Djerman	41	1
Mawaddah Warahmah	37	3
Nur Febrianti Bakri	39	3
Andi Muthi'ah Ilham	40	1
Andi Ahyar	43	4
Total	**597**	**40**

n	15	$(X_i - \bar{X}) . (Y_i - \bar{Y})$	14		
$\bar{X}$	39.8	**Sample Covariance**	1		
$\bar{Y}$	2.67	**Population Covariance**	0.93		

Based on the covariance value obtained, the relationship between the two variables is almost unrelated or the relationship between the two variables is very weak because the value of the covariance is very small, even almost close to zero regardless of the positive or negative value of the covariance. In addition, visually through the scatter plot, it can also be seen that the two variables are not related to each other because there are no linear lines on the scatter plot.



X	Y	$(X_i - \bar{X})$	$(Y_i - \bar{Y})$	$(X_i - \bar{X}) . (Y_i - \bar{Y})$
41	1	1.2	-1.67	-2.00
41	2	1.2	-0.67	-0.80
41	4	1.2	1.33	1.60
46	5	6.2	2.33	14.47
39	4	-0.8	1.33	-1.07
37	4	-2.8	1.33	-3.73
38	2	-1.8	-0.67	1.20
38	1	-1.8	-1.67	3.00
38	2	-1.8	-0.67	1.20
38	3	-1.8	0.33	-0.60
41	1	1.2	-1.67	-2.00
37	3	-2.8	0.33	-0.93
39	3	-0.8	0.33	-0.27
40	1	0.2	-1.67	-0.33
43	4	3.2	1.33	4.27
		Total		**14**

Number 1 | Number 2 (a & b) | Number 2 (c) | **Number 3 (a)** | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

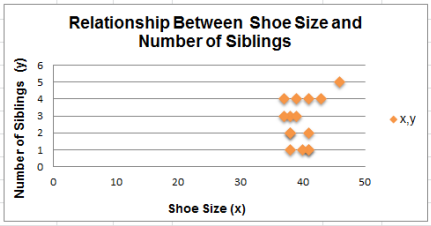
Ready

M2 | =K2-F3

Name	Shoe Size (X)	Number of Siblings (Y)
Syarifah Balqies Al-Haddad	41	1
Aghil Adrian Aryananda	41	2
Ahmad Akhyar	41	4
Chandra Sakti Prabowo	46	5
Ainul Mardhiah Hasan	39	4
Nur Amalia Ramadhani	37	4
Jihan Nasyifa Arwana	38	2
Regina Farah Nafilah	38	1
Inayah Salsabil	38	2
Iin Fatimah Tri Utami	38	3
Adilah Zahirah Fitri Djerman	41	1
Mawaddah Warahmah	37	3
Nur Febrianti Bakri	39	3
Andi Muthi'ah Ilham	40	1
Andi Ahyar	43	4
Total	**597**	**40**

n	15	$(X_i - \bar{X}) . (Y_i - \bar{Y})$	14		
$\bar{X}$	39.8	**Sample Covariance**	1		
$\bar{Y}$	2.67	**Population Covariance**	0.93		

Based on the covariance value obtained, the relationship between the two variables is almost unrelated or the relationship between the two variables is very weak because the value of the covariance is very small, even almost close to zero regardless of the positive or negative value of the covariance. In addition, visually through the scatter plot, it can also be seen that the two variables are not related to each other because there are no linear lines on the scatter plot.



X	Y	$(X_i - \bar{X})$	$(Y_i - \bar{Y})$	$(X_i - \bar{X}) . (Y_i - \bar{Y})$
41	1	1.2	-1.67	-2.00
41	2	1.2	-0.67	-0.80
41	4	1.2	1.33	1.60
46	5	6.2	2.33	14.47
39	4	-0.8	1.33	-1.07
37	4	-2.8	1.33	-3.73
38	2	-1.8	-0.67	1.20
38	1	-1.8	-1.67	3.00
38	2	-1.8	-0.67	1.20
38	3	-1.8	0.33	-0.60
41	1	1.2	-1.67	-2.00
37	3	-2.8	0.33	-0.93
39	3	-0.8	0.33	-0.27
40	1	0.2	-1.67	-0.33
43	4	3.2	1.33	4.27
		Total		**14**

Number 1 | Number 2 (a & b) | Number 2 (c) | **Number 3 (a)** | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

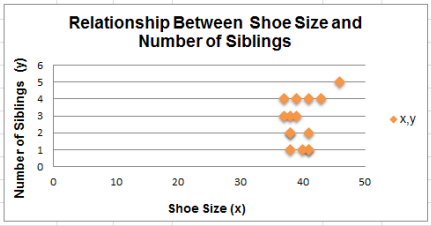
Ready

N2 | =L2*M2

Name	Shoe Size (X)	Number of Siblings (Y)
Syarifah Balqies Al-Haddad	41	1
Aghil Adrian Aryananda	41	2
Ahmad Akhyar	41	4
Chandra Sakti Prabowo	46	5
Ainul Mardhiah Hasan	39	4
Nur Amalia Ramadhani	37	4
Jihan Nasyifa Arwana	38	2
Regina Farah Nafilah	38	1
Inayah Salsabil	38	2
Iin Fatimah Tri Utami	38	3
Adilah Zahirah Fitri Djerman	41	1
Mawaddah Warahmah	37	3
Nur Febrianti Bakri	39	3
Andi Muthi'ah Ilham	40	1
Andi Ahyar	43	4
Total	**597**	**40**

n	15	$(X_i - \bar{X}) . (Y_i - \bar{Y})$	14		
$\bar{X}$	39.8	**Sample Covariance**	1		
$\bar{Y}$	2.67	**Population Covariance**	0.93		

Based on the covariance value obtained, the relationship between the two variables is almost unrelated or the relationship between the two variables is very weak because the value of the covariance is very small, even almost close to zero regardless of the positive or negative value of the covariance. In addition, visually through the scatter plot, it can also be seen that the two variables are not related to each other because there are no linear lines on the scatter plot.



X	Y	$(X_i - \bar{X})$	$(Y_i - \bar{Y})$	$(X_i - \bar{X}) . (Y_i - \bar{Y})$
41	1	1.2	-1.67	-2.00
41	2	1.2	-0.67	-0.80
41	4	1.2	1.33	1.60
46	5	6.2	2.33	14.47
39	4	-0.8	1.33	-1.07
37	4	-2.8	1.33	-3.73
38	2	-1.8	-0.67	1.20
38	1	-1.8	-1.67	3.00
38	2	-1.8	-0.67	1.20
38	3	-1.8	0.33	-0.60
41	1	1.2	-1.67	-2.00
37	3	-2.8	0.33	-0.93
39	3	-0.8	0.33	-0.27
40	1	0.2	-1.67	-0.33
43	4	3.2	1.33	4.27
		Total		**14**

Number 1 | Number 2 (a & b) | Number 2 (c) | **Number 3 (a)** | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

Ready

b)

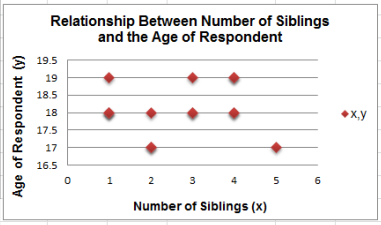
H2 =B18/H1

Name	Number of Siblings (X)	$(X_i - \bar{X})^2$	Age of Respondent (Y)	$(Y_i - \bar{Y})^2$
Syarifah Balqies Al-Haddad	1	2.778	18	0.004
Aghil Adrian Aryananda	2	0.444	17	1.138
Ahmad Akhyar	4	1.778	19	0.871
Chandra Sakti Prabowo	5	5.444	17	1.138
Ainul Mardhiah Hasan	4	1.778	18	0.004
Nur Amalia Ramadhani	4	1.778	19	0.871
Jihan Nasyifa Arwana	2	0.444	18	0.004
Regina Farah Nafilah	1	2.778	18	0.004
Inayah Salsabil	2	0.444	17	1.138
Iin Fatimah Tri Utami	3	0.111	19	0.871
Adilah Zahirah Fitri Djerman	1	2.778	19	0.871
Mawaddah Warahmah	3	0.111	18	0.004
Nur Febrianti Bakri	3	0.111	18	0.004
Andi Muthi'ah Ilham	1	2.778	18	0.004
Andi Ahyar	4	1.778	18	0.004
Total	**40**	**25.333**	**271**	**6.933**

n	15	$(X_i - \bar{X}) . (Y_i - \bar{Y})$	2
$\bar{X}$	2.67	S_x	1.3452
$\bar{Y}$	18.07	S_y	0.7037
Correlation Coefficient			0.1509

Based on the correlation coefficient value, the correlation between the two variables is almost unrelated or the correlation between the two variables is very weak because the value of the correlation coefficient is very small, even close to zero. In addition, visually through the scatter plot, it can also be seen that the two variables are not related to each other because there are no linear lines on the scatter plot, even the points are scattered everywhere.

X	Y	$(X_i - \bar{X})$	$(Y_i - \bar{Y})$	$(X_i - \bar{X}) . (Y_i - \bar{Y})$
1	18	-1.67	-0.07	0.11
2	17	-0.67	-1.07	0.71
4	19	1.33	0.93	1.24
5	17	2.33	-1.07	-2.49
4	18	1.33	-0.07	-0.09
4	19	1.33	0.93	1.24
2	18	-0.67	-0.07	0.04
1	18	-1.67	-0.07	0.11
2	17	-0.67	-1.07	0.71
3	19	0.33	0.93	0.31
1	18	-1.67	-0.07	0.11
3	18	0.33	-0.07	-0.02
3	18	0.33	-0.07	-0.02
1	18	-1.67	-0.07	0.11
4	18	1.33	-0.07	-0.09
Total				**2**



Number 1 | Number 2 (a & b) | Number 2 (c) | Number 3 (a) | **Number 3 (b)** | Number 4 (a) | Number 4 (b) | Number 4 (c)

Ready 100%

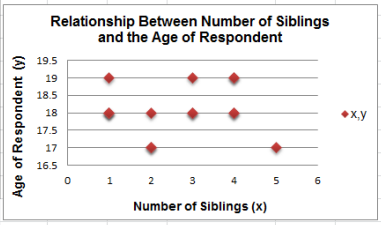
H3 =D18/H1

Name	Number of Siblings (X)	$(X_i - \bar{X})^2$	Age of Respondent (Y)	$(Y_i - \bar{Y})^2$
Syarifah Balqies Al-Haddad	1	2.778	18	0.004
Aghil Adrian Aryananda	2	0.444	17	1.138
Ahmad Akhyar	4	1.778	19	0.871
Chandra Sakti Prabowo	5	5.444	17	1.138
Ainul Mardhiah Hasan	4	1.778	18	0.004
Nur Amalia Ramadhani	4	1.778	19	0.871
Jihan Nasyifa Arwana	2	0.444	18	0.004
Regina Farah Nafilah	1	2.778	18	0.004
Inayah Salsabil	2	0.444	17	1.138
Iin Fatimah Tri Utami	3	0.111	19	0.871
Adilah Zahirah Fitri Djerman	1	2.778	19	0.871
Mawaddah Warahmah	3	0.111	18	0.004
Nur Febrianti Bakri	3	0.111	18	0.004
Andi Muthi'ah Ilham	1	2.778	18	0.004
Andi Ahyar	4	1.778	18	0.004
Total	**40**	**25.333**	**271**	**6.933**

n	15	$(X_i - \bar{X}) . (Y_i - \bar{Y})$	2
$\bar{X}$	2.67	S_x	1.3452
$\bar{Y}$	18.07	S_y	0.7037
Correlation Coefficient			0.1509

Based on the correlation coefficient value, the correlation between the two variables is almost unrelated or the correlation between the two variables is very weak because the value of the correlation coefficient is very small, even close to zero. In addition, visually through the scatter plot, it can also be seen that the two variables are not related to each other because there are no linear lines on the scatter plot, even the points are scattered everywhere.

X	Y	$(X_i - \bar{X})$	$(Y_i - \bar{Y})$	$(X_i - \bar{X}) . (Y_i - \bar{Y})$
1	18	-1.67	-0.07	0.11
2	17	-0.67	-1.07	0.71
4	19	1.33	0.93	1.24
5	17	2.33	-1.07	-2.49
4	18	1.33	-0.07	-0.09
4	19	1.33	0.93	1.24
2	18	-0.67	-0.07	0.04
1	18	-1.67	-0.07	0.11
2	17	-0.67	-1.07	0.71
3	19	0.33	0.93	0.31
1	18	-1.67	-0.07	0.11
3	18	0.33	-0.07	-0.02
3	18	0.33	-0.07	-0.02
1	18	-1.67	-0.07	0.11
4	18	1.33	-0.07	-0.09
Total				**2**



Number 1 | Number 2 (a & b) | Number 2 (c) | Number 3 (a) | **Number 3 (b)** | Number 4 (a) | Number 4 (b) | Number 4 (c)

Ready 100%

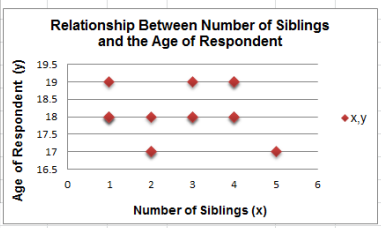
J1 =SUM(P2:P16)

Name	Number of Siblings (X)	$(X_i - \bar{X})^2$	Age of Respondent (Y)	$(Y_i - \bar{Y})^2$
Syarifah Balqies Al-Haddad	1	2.778	18	0.004
Aghil Adrian Aryananda	2	0.444	17	1.138
Ahmad Akhyar	4	1.778	19	0.871
Chandra Sakti Prabowo	5	5.444	17	1.138
Ainul Mardhiah Hasan	4	1.778	18	0.004
Nur Amalia Ramadhani	4	1.778	19	0.871
Jihan Nasyifa Arwana	2	0.444	18	0.004
Regina Farah Nafilah	1	2.778	18	0.004
Inayah Salsabil	2	0.444	17	1.138
Iin Fatimah Tri Utami	3	0.111	19	0.871
Adilah Zahirah Fitri Djerman	1	2.778	19	0.871
Mawaddah Warahmah	3	0.111	18	0.004
Nur Febrianti Bakri	3	0.111	18	0.004
Andi Muthi'ah Ilham	1	2.778	18	0.004
Andi Ahyar	4	1.778	18	0.004
Total	**40**	**25.333**	**271**	**6.933**

n	15	$(X_i - \bar{X}) . (Y_i - \bar{Y})$	2
$\bar{X}$	2.67	S_x	1.3452
$\bar{Y}$	18.07	S_y	0.7037
Correlation Coefficient			0.1509

Based on the correlation coefficient value, the correlation between the two variables is almost unrelated or the correlation between the two variables is very weak because the value of the correlation coefficient is very small, even close to zero. In addition, visually through the scatter plot, it can also be seen that the two variables are not related to each other because there are no linear lines on the scatter plot, even the points are scattered everywhere.

X	Y	$(X_i - \bar{X})$	$(Y_i - \bar{Y})$	$(X_i - \bar{X}) . (Y_i - \bar{Y})$
1	18	-1.67	-0.07	0.11
2	17	-0.67	-1.07	0.71
4	19	1.33	0.93	1.24
5	17	2.33	-1.07	-2.49
4	18	1.33	-0.07	-0.09
4	19	1.33	0.93	1.24
2	18	-0.67	-0.07	0.04
1	18	-1.67	-0.07	0.11
2	17	-0.67	-1.07	0.71
3	19	0.33	0.93	0.31
1	18	-1.67	-0.07	0.11
3	18	0.33	-0.07	-0.02
3	18	0.33	-0.07	-0.02
1	18	-1.67	-0.07	0.11
4	18	1.33	-0.07	-0.09
Total				**2**



Number 1 | Number 2 (a & b) | Number 2 (c) | Number 3 (a) | **Number 3 (b)** | Number 4 (a) | Number 4 (b) | Number 4 (c)

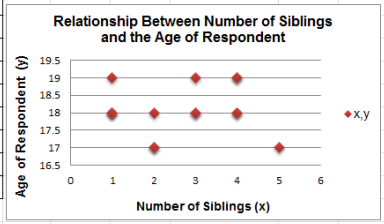
Ready 100%

J2 =SQRT(C18/(H1-1))

	Name	Number of Siblings (X)	$(Xi - \bar{X})^2$	Age of Respondent (Y)	$(Yi - \bar{Y})^2$
3	Syarifah Balqies Al-Haddad	1	2.778	18	0.004
4	Aghil Adrian Aryananda	2	0.444	17	1.138
5	Ahmad Akhyar	4	1.778	19	0.871
6	Chandra Sakti Prabowo	5	5.444	17	1.138
7	Ainul Mardhiah Hasan	4	1.778	18	0.004
8	Nur Amalia Ramadhani	4	1.778	19	0.871
9	Jihan Nasyifa Arwana	2	0.444	18	0.004
10	Regina Farah Nafilah	1	2.778	18	0.004
11	Inayah Salsabil	2	0.444	17	1.138
12	Iin Fatimah Tri Utami	3	0.111	19	0.871
13	Adilah Zahirah Fitri Djerman	1	2.778	19	0.871
14	Mawaddah Warahmah	3	0.111	18	0.004
15	Nur Febrianti Bakri	3	0.111	18	0.004
16	Andi Muthi'ah Ilham	1	2.778	18	0.004
17	Andi Ahyar	4	1.778	18	0.004
18	**Total**	**40**	**25.333**	**271**	**6.933**

	n	15	$(Xi - \bar{X}) . (Yi - \bar{Y})$	2
	$\bar{X}$	2.67	S_X	1.3452
	$\bar{Y}$	18.07	S_Y	0.7037
	Correlation Coefficient			0.1509

Based on the correlation coefficient value, the correlation between the two variables is almost unrelated or the correlation between the two variables is very weak because the value of the correlation coefficient is very small, even close to zero. In addition, visually through the scatter plot, it can also be seen that the two variables are not related to each other because there are no linear lines on the scatter plot, even the points are scattered everywhere.



X	Y	$(Xi - \bar{X})$	$(Yi - \bar{Y})$	$(Xi - \bar{X}) . (Yi - \bar{Y})$
1	18	-1.67	-0.07	0.11
2	17	-0.67	-1.07	0.71
4	19	1.33	0.93	1.24
5	17	2.33	-1.07	-2.49
4	18	1.33	-0.07	-0.09
4	19	1.33	0.93	1.24
2	18	-0.67	-0.07	0.04
1	18	-1.67	-0.07	0.11
2	17	-0.67	-1.07	0.71
3	19	0.33	0.93	0.31
1	18	-1.67	-0.07	0.11
3	18	0.33	-0.07	-0.02
3	18	0.33	-0.07	-0.02
1	18	-1.67	-0.07	0.11
4	18	1.33	-0.07	-0.09
Total				**2**

Number 1 | Number 2 (a & b) | Number 2 (c) | Number 3 (a) | **Number 3 (b)** | Number 4 (a) | Number 4 (b) | Number 4 (c)

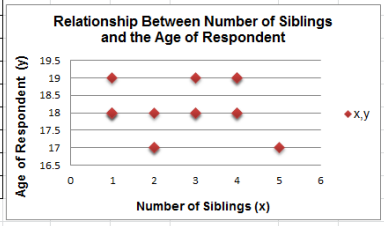
Ready 100%

J3 =SQRT(E18/(H1-1))

	Name	Number of Siblings (X)	$(Xi - \bar{X})^2$	Age of Respondent (Y)	$(Yi - \bar{Y})^2$
3	Syarifah Balqies Al-Haddad	1	2.778	18	0.004
4	Aghil Adrian Aryananda	2	0.444	17	1.138
5	Ahmad Akhyar	4	1.778	19	0.871
6	Chandra Sakti Prabowo	5	5.444	17	1.138
7	Ainul Mardhiah Hasan	4	1.778	18	0.004
8	Nur Amalia Ramadhani	4	1.778	19	0.871
9	Jihan Nasyifa Arwana	2	0.444	18	0.004
10	Regina Farah Nafilah	1	2.778	18	0.004
11	Inayah Salsabil	2	0.444	17	1.138
12	Iin Fatimah Tri Utami	3	0.111	19	0.871
13	Adilah Zahirah Fitri Djerman	1	2.778	19	0.871
14	Mawaddah Warahmah	3	0.111	18	0.004
15	Nur Febrianti Bakri	3	0.111	18	0.004
16	Andi Muthi'ah Ilham	1	2.778	18	0.004
17	Andi Ahyar	4	1.778	18	0.004
18	**Total**	**40**	**25.333**	**271**	**6.933**

	n	15	$(Xi - \bar{X}) . (Yi - \bar{Y})$	2
	$\bar{X}$	2.67	S_X	1.3452
	$\bar{Y}$	18.07	S_Y	0.7037
	Correlation Coefficient			0.1509

Based on the correlation coefficient value, the correlation between the two variables is almost unrelated or the correlation between the two variables is very weak because the value of the correlation coefficient is very small, even close to zero. In addition, visually through the scatter plot, it can also be seen that the two variables are not related to each other because there are no linear lines on the scatter plot, even the points are scattered everywhere.



X	Y	$(Xi - \bar{X})$	$(Yi - \bar{Y})$	$(Xi - \bar{X}) . (Yi - \bar{Y})$
1	18	-1.67	-0.07	0.11
2	17	-0.67	-1.07	0.71
4	19	1.33	0.93	1.24
5	17	2.33	-1.07	-2.49
4	18	1.33	-0.07	-0.09
4	19	1.33	0.93	1.24
2	18	-0.67	-0.07	0.04
1	18	-1.67	-0.07	0.11
2	17	-0.67	-1.07	0.71
3	19	0.33	0.93	0.31
1	18	-1.67	-0.07	0.11
3	18	0.33	-0.07	-0.02
3	18	0.33	-0.07	-0.02
1	18	-1.67	-0.07	0.11
4	18	1.33	-0.07	-0.09
Total				**2**

Number 1 | Number 2 (a & b) | Number 2 (c) | Number 3 (a) | **Number 3 (b)** | Number 4 (a) | Number 4 (b) | Number 4 (c)

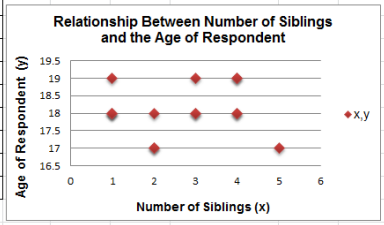
Ready 100%

J4 =J1/((H1-1)*J2*J3)

	Name	Number of Siblings (X)	$(Xi - \bar{X})^2$	Age of Respondent (Y)	$(Yi - \bar{Y})^2$
3	Syarifah Balqies Al-Haddad	1	2.778	18	0.004
4	Aghil Adrian Aryananda	2	0.444	17	1.138
5	Ahmad Akhyar	4	1.778	19	0.871
6	Chandra Sakti Prabowo	5	5.444	17	1.138
7	Ainul Mardhiah Hasan	4	1.778	18	0.004
8	Nur Amalia Ramadhani	4	1.778	19	0.871
9	Jihan Nasyifa Arwana	2	0.444	18	0.004
10	Regina Farah Nafilah	1	2.778	18	0.004
11	Inayah Salsabil	2	0.444	17	1.138
12	Iin Fatimah Tri Utami	3	0.111	19	0.871
13	Adilah Zahirah Fitri Djerman	1	2.778	19	0.871
14	Mawaddah Warahmah	3	0.111	18	0.004
15	Nur Febrianti Bakri	3	0.111	18	0.004
16	Andi Muthi'ah Ilham	1	2.778	18	0.004
17	Andi Ahyar	4	1.778	18	0.004
18	**Total**	**40**	**25.333**	**271**	**6.933**

	n	15	$(Xi - \bar{X}) . (Yi - \bar{Y})$	2
	$\bar{X}$	2.67	S_X	1.3452
	$\bar{Y}$	18.07	S_Y	0.7037
	Correlation Coefficient			0.1509

Based on the correlation coefficient value, the correlation between the two variables is almost unrelated or the correlation between the two variables is very weak because the value of the correlation coefficient is very small, even close to zero. In addition, visually through the scatter plot, it can also be seen that the two variables are not related to each other because there are no linear lines on the scatter plot, even the points are scattered everywhere.



X	Y	$(Xi - \bar{X})$	$(Yi - \bar{Y})$	$(Xi - \bar{X}) . (Yi - \bar{Y})$
1	18	-1.67	-0.07	0.11
2	17	-0.67	-1.07	0.71
4	19	1.33	0.93	1.24
5	17	2.33	-1.07	-2.49
4	18	1.33	-0.07	-0.09
4	19	1.33	0.93	1.24
2	18	-0.67	-0.07	0.04
1	18	-1.67	-0.07	0.11
2	17	-0.67	-1.07	0.71
3	19	0.33	0.93	0.31
1	18	-1.67	-0.07	0.11
3	18	0.33	-0.07	-0.02
3	18	0.33	-0.07	-0.02
1	18	-1.67	-0.07	0.11
4	18	1.33	-0.07	-0.09
Total				**2**

Number 1 | Number 2 (a & b) | Number 2 (c) | Number 3 (a) | **Number 3 (b)** | Number 4 (a) | Number 4 (b) | Number 4 (c)

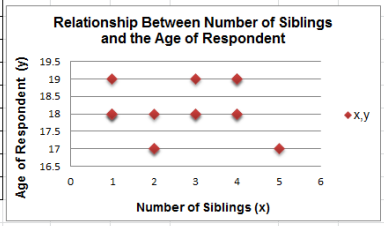
Ready 100%

N2 =L2-H2

Name	Number of Siblings (X)	$(X_i - \bar{X})^2$	Age of Respondent (Y)	$(Y_i - \bar{Y})^2$
Syarifah Balqies Al-Haddad	1	2.778	18	0.004
Aghil Adrian Aryananda	2	0.444	17	1.138
Ahmad Akhyar	4	1.778	19	0.871
Chandra Sakti Prabowo	5	5.444	17	1.138
Ainul Mardhiah Hasan	4	1.778	18	0.004
Nur Amalia Ramadhani	4	1.778	19	0.871
Jihan Nasyifa Arwana	2	0.444	18	0.004
Regina Farah Nafilah	1	2.778	18	0.004
Inayah Salsabil	2	0.444	17	1.138
Iin Fatimah Tri Utami	3	0.111	19	0.871
Adilah Zahirah Fitri Djerman	1	2.778	19	0.871
Mawaddah Warahmah	3	0.111	18	0.004
Nur Febrianti Bakri	3	0.111	18	0.004
Andi Muthi'ah Ilham	1	2.778	18	0.004
Andi Ahyar	4	1.778	18	0.004
Total	**40**	**25.333**	**271**	**6.933**

n	15	$(X_i - \bar{X}) . (Y_i - \bar{Y})$	2	
$\bar{X}$	2.67	Sx	1.3452	
$\bar{Y}$	18.07	Sy	0.7037	
Correlation Coefficient			0.1509	

Based on the correlation coefficient value, the correlation between the two variables is almost unrelated or the correlation between the two variables is very weak because the value of the correlation coefficient is very small, even close to zero. In addition, visually through the scatter plot, it can also be seen that the two variables are not related to each other because there are no linear lines on the scatter plot, even the points are scattered everywhere.



X	Y	$(X_i - \bar{X})$	$(Y_i - \bar{Y})$	$(X_i - \bar{X}) . (Y_i - \bar{Y})$
1	18	-1.67	-0.07	0.11
2	17	-0.67	-1.07	0.71
4	19	1.33	0.93	1.24
5	17	2.33	-1.07	-2.49
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3	18	0.33	-0.07	-0.02
1	18	-1.67	-0.07	0.11
4	18	1.33	-0.07	-0.09
Total				**2**

Number 1 | Number 2 (a & b) | Number 2 (c) | Number 3 (a) | **Number 3 (b)** | Number 4 (a) | Number 4 (b) | Number 4 (c)

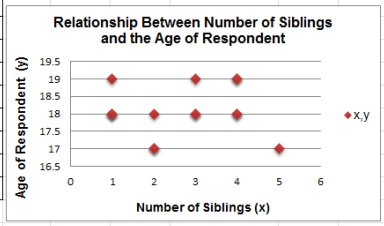
Ready 100%

O2 =M2-H3

Name	Number of Siblings (X)	$(X_i - \bar{X})^2$	Age of Respondent (Y)	$(Y_i - \bar{Y})^2$
Syarifah Balqies Al-Haddad	1	2.778	18	0.004
Aghil Adrian Aryananda	2	0.444	17	1.138
Ahmad Akhyar	4	1.778	19	0.871
Chandra Sakti Prabowo	5	5.444	17	1.138
Ainul Mardhiah Hasan	4	1.778	18	0.004
Nur Amalia Ramadhani	4	1.778	19	0.871
Jihan Nasyifa Arwana	2	0.444	18	0.004
Regina Farah Nafilah	1	2.778	18	0.004
Inayah Salsabil	2	0.444	17	1.138
Iin Fatimah Tri Utami	3	0.111	19	0.871
Adilah Zahirah Fitri Djerman	1	2.778	19	0.871
Mawaddah Warahmah	3	0.111	18	0.004
Nur Febrianti Bakri	3	0.111	18	0.004
Andi Muthi'ah Ilham	1	2.778	18	0.004
Andi Ahyar	4	1.778	18	0.004
Total	**40**	**25.333**	**271**	**6.933**

n	15	$(X_i - \bar{X}) . (Y_i - \bar{Y})$	2	
$\bar{X}$	2.67	Sx	1.3452	
$\bar{Y}$	18.07	Sy	0.7037	
Correlation Coefficient			0.1509	

Based on the correlation coefficient value, the correlation between the two variables is almost unrelated or the correlation between the two variables is very weak because the value of the correlation coefficient is very small, even close to zero. In addition, visually through the scatter plot, it can also be seen that the two variables are not related to each other because there are no linear lines on the scatter plot, even the points are scattered everywhere.



X	Y	$(X_i - \bar{X})$	$(Y_i - \bar{Y})$	$(X_i - \bar{X}) . (Y_i - \bar{Y})$
1	18	-1.67	-0.07	0.11
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3	18	0.33	-0.07	-0.02
1	18	-1.67	-0.07	0.11
4	18	1.33	-0.07	-0.09
Total				**2**

Number 1 | Number 2 (a & b) | Number 2 (c) | Number 3 (a) | **Number 3 (b)** | Number 4 (a) | Number 4 (b) | Number 4 (c)

Ready 100%

P2 =N2*O2

Name	Number of Siblings (X)	$(X_i - \bar{X})^2$	Age of Respondent (Y)	$(Y_i - \bar{Y})^2$
Syarifah Balqies Al-Haddad	1	2.778	18	0.004
Aghil Adrian Aryananda	2	0.444	17	1.138
Ahmad Akhyar	4	1.778	19	0.871
Chandra Sakti Prabowo	5	5.444	17	1.138
Ainul Mardhiah Hasan	4	1.778	18	0.004
Nur Amalia Ramadhani	4	1.778	19	0.871
Jihan Nasyifa Arwana	2	0.444	18	0.004
Regina Farah Nafilah	1	2.778	18	0.004
Inayah Salsabil	2	0.444	17	1.138
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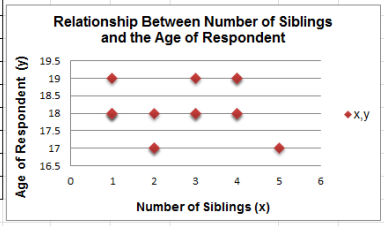
Mawaddah Warahmah	3	0.111	18	0.004
Nur Febrianti Bakri	3	0.111	18	0.004
Andi Muthi'ah Ilham	1	2.778	18	0.004
Andi Ahyar	4	1.778	18	0.004
Total	**40**	**25.333**	**271**	**6.933**

n	15	$(X_i - \bar{X}) . (Y_i - \bar{Y})$	2	
$\bar{X}$	2.67	Sx	1.3452	
$\bar{Y}$	18.07	Sy	0.7037	
Correlation Coefficient			0.1509	

Based on the correlation coefficient value, the correlation between the two variables is almost unrelated or the correlation between the two variables is very weak because the value of the correlation coefficient is very small, even close to zero. In addition, visually through the scatter plot, it can also be seen that the two variables are not related to each other because there are no linear lines on the scatter plot, even the points are scattered everywhere.



X	Y	$(X_i - \bar{X})$	$(Y_i - \bar{Y})$	$(X_i - \bar{X}) . (Y_i - \bar{Y})$
1	18	-1.67	-0.07	0.11
2	17	-0.67	-1.07	0.71
4	19	1.33	0.93	1.24
5	17	2.33	-1.07	-2.49
4	18	1.33	-0.07	-0.09
4	19	1.33	0.93	1.24
2	18	-0.67	-0.07	0.04
1	18	-1.67	-0.07	0.11
2	17	-0.67	-1.07	0.71
3	19	0.33	0.93	0.31
1	18	-1.67	-0.07	0.11
3	18	0.33	-0.07	-0.02
3	18	0.33	-0.07	-0.02
1	18	-1.67	-0.07	0.11
4	18	1.33	-0.07	-0.09
Total				**2**

Number 1 | Number 2 (a & b) | Number 2 (c) | Number 3 (a) | **Number 3 (b)** | Number 4 (a) | Number 4 (b) | Number 4 (c)

Ready 100%

4. (35 %)

a) Use **parameter 5 and parameter 1.**
Find the **regression line,** predict the values of y (based on the regression line) on two different values of x (for example x= … find the value of y)

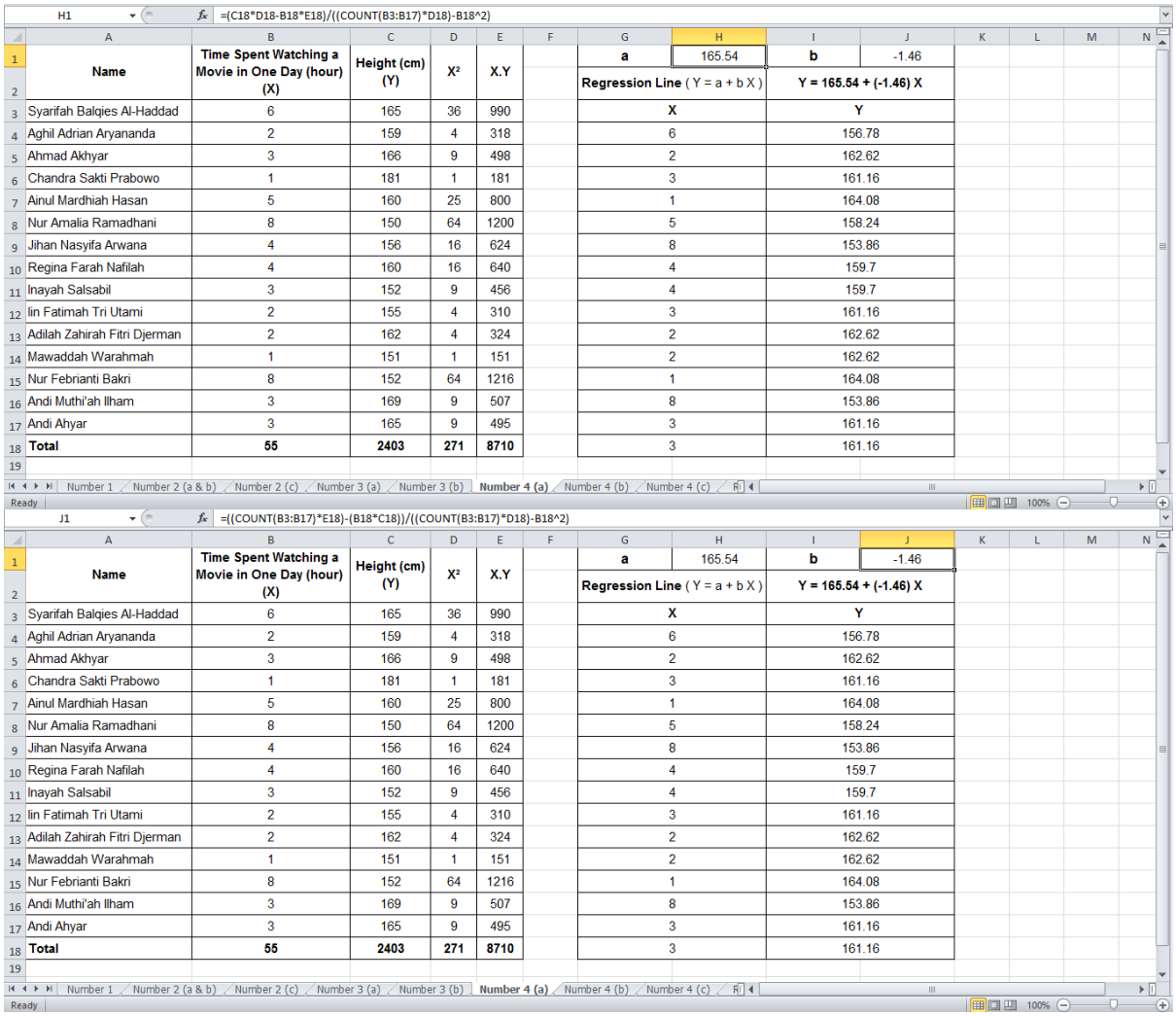
b) Find the coefficient of determination and give comments on the value of coefficient of determination

c) Check the assumption of using Least Square Method as a prediction of applying regression line. Make comments on the assumptions

(10 Marks)

ANSWERS:

a)



H1 =(C18*D18-B18*E18)/((COUNT(B3:B17)*D18)-B18^2)

	Name	Time Spent Watching a Movie in One Day (hour) (X)	Height (cm) (Y)	X²	X.Y
	Syarifah Balqies Al-Haddad	6	165	36	990
	Aghil Adrian Aryananda	2	159	4	318
	Ahmad Akhyar	3	166	9	498
	Chandra Sakti Prabowo	1	181	1	181
	Ainul Mardhiah Hasan	5	160	25	800
	Nur Amalia Ramadhani	8	150	64	1200
	Jihan Nasyifa Arwana	4	156	16	624
	Regina Farah Nafilah	4	160	16	640
	Inayah Salsabil	3	152	9	456
	Iin Fatimah Tri Utami	2	155	4	310
	Adilah Zahirah Fitri Djerman	2	162	4	324
	Mawaddah Warahmah	1	151	1	151
	Nur Febrianti Bakri	8	152	64	1216
	Andi Muthi'ah Ilham	3	169	9	507
	Andi Ahyar	3	165	9	495
	Total	**55**	**2403**	**271**	**8710**

a	165.54	b	-1.46
Regression Line (Y = a + b X)		Y = 165.54 + (-1.46) X	

X	Y
6	156.78
2	162.62
3	161.16
1	164.08
5	158.24
8	153.86
4	159.7
4	159.7
3	161.16
2	162.62
2	162.62
1	164.08
8	153.86
3	161.16
3	161.16

Number 1 | Number 2 (a & b) | Number 2 (c) | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

Ready 100%

J1 =((COUNT(B3:B17)*E18)-(B18*C18))/((COUNT(B3:B17)*D18)-B18^2)

	Name	Time Spent Watching a Movie in One Day (hour) (X)	Height (cm) (Y)	X²	X.Y
	Syarifah Balqies Al-Haddad	6	165	36	990
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2	162.62
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3	161.16

Number 1 | Number 2 (a & b) | Number 2 (c) | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c)

Ready 100%

I4 =165.54+((-1.46)*G4)

	Name	Time Spent Watching a Movie in One Day (hour) (X)	Height (cm) (Y)	X^2	X.Y		G	H	I	J
1							a	165.54	b	-1.46
2							Regression Line (Y = a + b X)		Y = 165.54 + (-1.46) X	
3	Syarifah Balqies Al-Haddad	6	165	36	990		X		Y	
4	Aghil Adrian Aryananda	2	159	4	318		6		156.78	
5	Ahmad Akhyar	3	166	9	498		2		162.62	
6	Chandra Sakti Prabowo	1	181	1	181		3		161.16	
7	Ainul Mardhiah Hasan	5	160	25	800		1		164.08	
8	Nur Amalia Ramadhani	8	150	64	1200		5		158.24	
9	Jihan Nasyifa Arwana	4	156	16	624		8		153.86	
10	Regina Farah Nafilah	4	160	16	640		4		159.7	
11	Inayah Salsabil	3	152	9	456		4		159.7	
12	Iin Fatimah Tri Utami	2	155	4	310		3		161.16	
13	Adilah Zahirah Fitri Djerman	2	162	4	324		2		162.62	
14	Mawaddah Warahmah	1	151	1	151		2		162.62	
15	Nur Febrianti Bakri	8	152	64	1216		1		164.08	
16	Andi Muthi'ah Ilham	3	169	9	507		8		153.86	
17	Andi Ahyar	3	165	9	495		3		161.16	
18	**Total**	**55**	**2403**	**271**	**8710**		3		161.16	
19										

Number 1 | Number 2 (a & b) | Number 2 (c) | Number 3 (a) | Number 3 (b) | **Number 4 (a)** | Number 4 (b) | Number 4 (c)

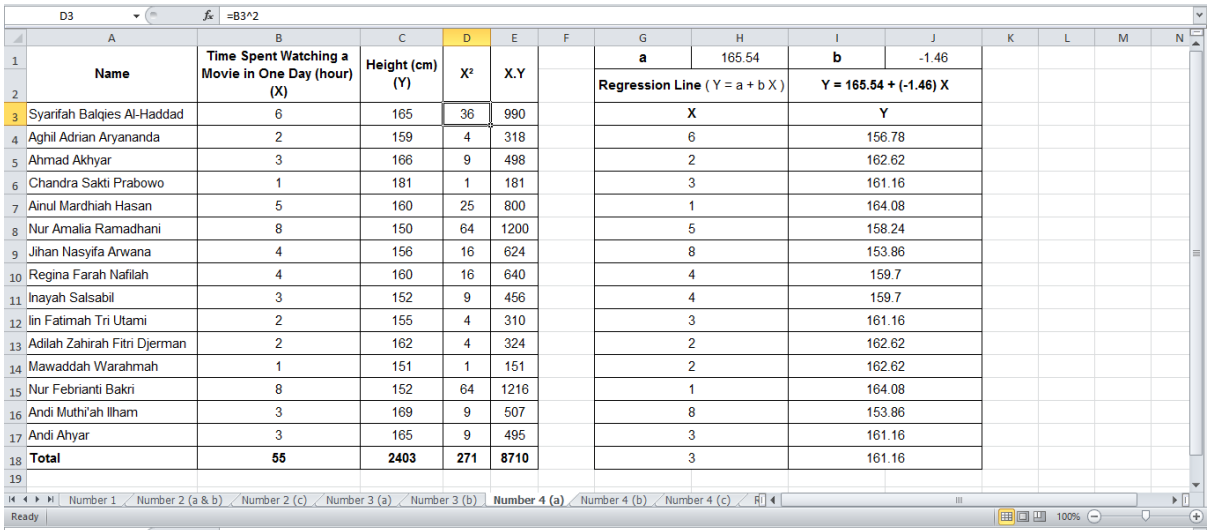
Ready 100%

I5 =165.54+((-1.46)*G5)

	Name	Time Spent Watching a Movie in One Day (hour) (X)	Height (cm) (Y)	X^2	X.Y		G	H	I	J
1							a	165.54	b	-1.46
2							Regression Line (Y = a + b X)		Y = 165.54 + (-1.46) X	
3	Syarifah Balqies Al-Haddad	6	165	36	990		X		Y	
4	Aghil Adrian Aryananda	2	159	4	318		6		156.78	
5	Ahmad Akhyar	3	166	9	498		2		162.62	
6	Chandra Sakti Prabowo	1	181	1	181		3		161.16	
7	Ainul Mardhiah Hasan	5	160	25	800		1		164.08	
8	Nur Amalia Ramadhani	8	150	64	1200		5		158.24	
9	Jihan Nasyifa Arwana	4	156	16	624		8		153.86	
10	Regina Farah Nafilah	4	160	16	640		4		159.7	
11	Inayah Salsabil	3	152	9	456		4		159.7	
12	Iin Fatimah Tri Utami	2	155	4	310		3		161.16	
13	Adilah Zahirah Fitri Djerman	2	162	4	324		2		162.62	
14	Mawaddah Warahmah	1	151	1	151		2		162.62	
15	Nur Febrianti Bakri	8	152	64	1216		1		164.08	
16	Andi Muthi'ah Ilham	3	169	9	507		8		153.86	
17	Andi Ahyar	3	165	9	495		3		161.16	
18	**Total**	**55**	**2403**	**271**	**8710**		3		161.16	
19										

Number 1 | Number 2 (a & b) | Number 2 (c) | Number 3 (a) | Number 3 (b) | **Number 4 (a)** | Number 4 (b) | Number 4 (c)

Ready 100%



D3 =B3^2

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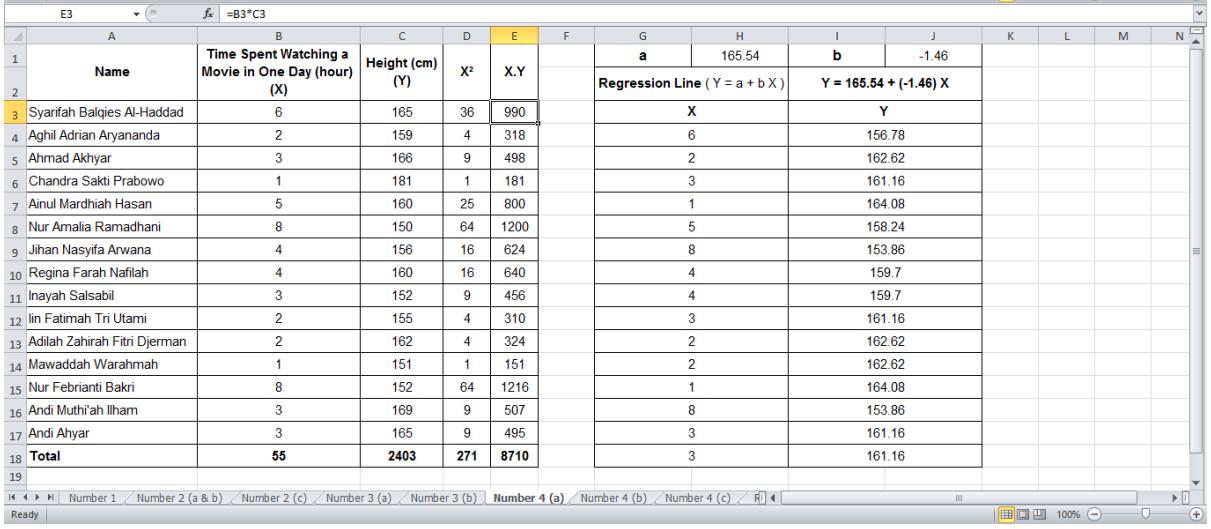
Number 1 | Number 2 (a & b) | Number 2 (c) | Number 3 (a) | Number 3 (b) | **Number 4 (a)** | Number 4 (b) | Number 4 (c)

Ready 100%



E3 =B3*C3

	Name	Time Spent Watching a Movie in One Day (hour) (X)	Height (cm) (Y)	X²	X.Y
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Ready 100%

b) references : https://slideplayer.info/slide/12048757/

D3 =B3^2

	Name	Time Spent Watching a Movie in One Day (hour) (X)	Height (cm) (Y)	X^2	Y^2	X.Y
3	Syarifah Balqies Al-Haddad	6	165	36	27225	990
4	Aghil Adrian Aryananda	2	159	4	25281	318
5	Ahmad Akhyar	3	166	9	27556	498
6	Chandra Sakti Prabowo	1	181	1	32761	181
7	Ainul Mardhiah Hasan	5	160	25	25600	800
8	Nur Amalia Ramadhani	8	150	64	22500	1200
9	Jihan Nasyifa Arwana	4	156	16	24336	624
10	Regina Farah Nafilah	4	160	16	25600	640
11	Inayah Salsabil	3	152	9	23104	456
12	Iin Fatimah Tri Utami	2	155	4	24025	310
13	Adilah Zahirah Fitri Djerman	2	162	4	26244	324
14	Mawaddah Warahmah	1	151	1	22801	151
15	Nur Febrianti Bakri	8	152	64	23104	1216
16	Andi Muthi'ah Ilham	3	169	9	28561	507
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18	**Total**	**55**	**2403**	**271**	**385923**	**8710**

Correlation Coefficient (r)	-0.391
Coefficient of Determination (r^2)	0.153

I use another formula to get the value of the coefficient of determination. The results remain the same if I use the SSR and SST values from the regression analysis. I get the coefficient of determination from the result of squaring the correlation coefficient. Here is another formula reference for the coefficient of determination I use: https://slideplayer.info/slide/12048757/

Based on the results of the coefficient of determination, it can be concluded that the variation in height of my high school friends which can be explained by the variation in how long my high school friends watch movies in a day by the regression equation Y = 165.54 + (-1.46) X is 15.3% and the remaining 84.7% is influenced by other factors.

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Ready 100%

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Ready 100%

F3 =B3*C3

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Ready 100%

I3 =(15*F18-B18*C18)/SQRT((15*D18-(B18^2))*(15*E18-(C18^2)))

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Ready 100%

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Ready 100%

F4 =C12/C14

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.390996191
R Square	0.152878021
Adjusted R Square	0.087714792
Standard Error	7.919159786
Observations	15

Coefficient of Determination (r²) using SSR and SST from Regression Analysis	0.153

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	147.1298077	147.1298077	2.346078046	0.149565361
Residual	13	815.2701923	62.71309172		
Total	14	962.4			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	165.5413462	4.04247257	40.95051811	3.95856E-15	156.8081151	174.2745772	156.8081151	174.2745772
X Variable 1	-1.456730769	0.951060327	-1.531691237	0.149565361	-3.51137169	0.597910152	-3.51137169	0.597910152

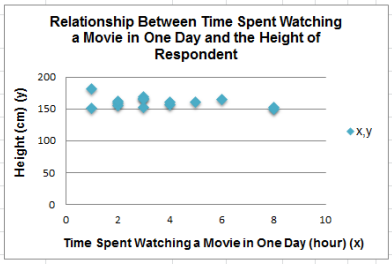
Number 2 (c) | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | Number 4 (c) | **Regression Analysis**

Ready 100%

c)

F14 =B18/(COUNT(B3:B17))

Name	Time Spent Watching a Movie in One Day (hour) (X)	Height (cm) (Y)
Syarifah Balqies Al-Haddad	6	165
Aghil Adrian Aryananda	2	159
Ahmad Akhyar	3	166
Chandra Sakti Prabowo	1	181
Ainul Mardhiah Hasan	5	160
Nur Amalia Ramadhani	8	150
Jihan Nasyifa Arwana	4	156
Regina Farah Nafilah	4	160
Inayah Salsabil	3	152
Iin Fatimah Tri Utami	2	155
Adilah Zahirah Fitri Djerman	2	162
Mawaddah Warahmah	1	151
Nur Febrianti Bakri	8	152
Andi Muthi'ah Ilham	3	169
Andi Ahyar	3	165
Total	**55**	**2403**



	X	Y
Mean	3.67	160.2
Median	3	160
Standard Deviation	2.225	8.291

Linearity

Based on the linearity assumption of the regression line **Y = 165.54 + (-1.46) X** is quite difficult or even unusable because visually through the scatter plot it can be seen that there are no linear lines in the scatter plot, even only forming a straight line. In addition, the scatter plot also explains that the relationship is weak or even there is no relationship between the two variables.

Normality of Error

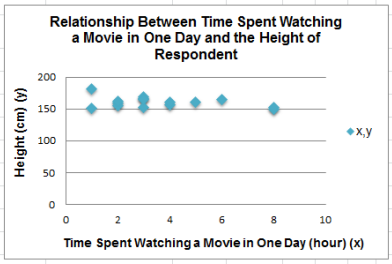
Based on the assumption of normality of error, the regression line **Y = 165.54 + (-1.46) X** is also quite difficult or even cannot be used because of the 4 existing normality theories, none of the theories can fulfill the regression line.

Number 1 | Number 2 (a & b) | Number 2 (c) | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | **Number 4 (c)**

Ready 100%

G14 =C18/COUNT(C3:C17)

Name	Time Spent Watching a Movie in One Day (hour) (X)	Height (cm) (Y)
Syarifah Balqies Al-Haddad	6	165
Aghil Adrian Aryananda	2	159
Ahmad Akhyar	3	166
Chandra Sakti Prabowo	1	181
Ainul Mardhiah Hasan	5	160
Nur Amalia Ramadhani	8	150
Jihan Nasyifa Arwana	4	156
Regina Farah Nafilah	4	160
Inayah Salsabil	3	152
Iin Fatimah Tri Utami	2	155
Adilah Zahirah Fitri Djerman	2	162
Mawaddah Warahmah	1	151
Nur Febrianti Bakri	8	152
Andi Muthi'ah Ilham	3	169
Andi Ahyar	3	165
Total	**55**	**2403**



	X	Y
Mean	3.67	160.2
Median	3	160
Standard Deviation	2.225	8.291

Linearity

Based on the linearity assumption of the regression line **Y = 165.54 + (-1.46) X** is quite difficult or even unusable because visually through the scatter plot it can be seen that there are no linear lines in the scatter plot, even only forming a straight line. In addition, the scatter plot also explains that the relationship is weak or even there is no relationship between the two variables.

Normality of Error

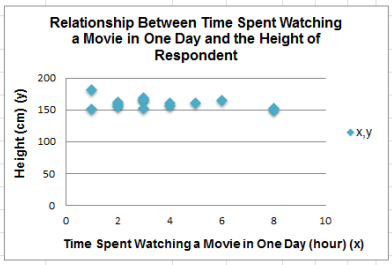
Based on the assumption of normality of error, the regression line **Y = 165.54 + (-1.46) X** is also quite difficult or even cannot be used because of the 4 existing normality theories, none of the theories can fulfill the regression line.

Number 1 | Number 2 (a & b) | Number 2 (c) | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | **Number 4 (c)**

Ready 100%

F15 =MEDIAN(B3:B17)

Name	Time Spent Watching a Movie in One Day (hour) (X)	Height (cm) (Y)
Syarifah Balqies Al-Haddad	6	165
Aghil Adrian Aryananda	2	159
Ahmad Akhyar	3	166
Chandra Sakti Prabowo	1	181
Ainul Mardhiah Hasan	5	160
Nur Amalia Ramadhani	8	150
Jihan Nasyifa Arwana	4	156
Regina Farah Nafilah	4	160
Inayah Salsabil	3	152
Iin Fatimah Tri Utami	2	155
Adilah Zahirah Fitri Djerman	2	162
Mawaddah Warahmah	1	151
Nur Febrianti Bakri	8	152
Andi Muthi'ah Ilham	3	169
Andi Ahyar	3	165
Total	**55**	**2403**



	X	Y
Mean	3.67	160.2
Median	3	160
Standard Deviation	2.225	8.291

Linearity

Based on the linearity assumption of the regression line **Y = 165.54 + (-1.46) X** is quite difficult or even unusable because visually through the scatter plot it can be seen that there are no linear lines in the scatter plot, even only forming a straight line. In addition, the scatter plot also explains that the relationship is weak or even there is no relationship between the two variables.

Normality of Error

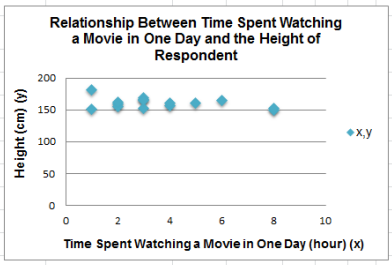
Based on the assumption of normality of error, the regression line **Y = 165.54 + (-1.46) X** is also quite difficult or even cannot be used because of the 4 existing normality theories, none of the theories can fulfill the regression line.

Number 1 | Number 2 (a & b) | Number 2 (c) | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | **Number 4 (c)**

Ready 100%

G15 =MEDIAN(C3:C17)

Name	Time Spent Watching a Movie in One Day (hour) (X)	Height (cm) (Y)
Syarifah Balqies Al-Haddad	6	165
Aghil Adrian Aryananda	2	159
Ahmad Akhyar	3	166
Chandra Sakti Prabowo	1	181
Ainul Mardhiah Hasan	5	160
Nur Amalia Ramadhani	8	150
Jihan Nasyifa Arwana	4	156
Regina Farah Nafilah	4	160
Inayah Salsabil	3	152
Iin Fatimah Tri Utami	2	155
Adilah Zahirah Fitri Djerman	2	162
Mawaddah Warahmah	1	151
Nur Febrianti Bakri	8	152
Andi Muthi'ah Ilham	3	169
Andi Ahyar	3	165
Total	**55**	**2403**



	X	Y
Mean	3.67	160.2
Median	3	160
Standard Deviation	2.225	8.291

Linearity

Based on the linearity assumption of the regression line **Y = 165.54 + (-1.46) X** is quite difficult or even unusable because visually through the scatter plot it can be seen that there are no linear lines in the scatter plot, even only forming a straight line. In addition, the scatter plot also explains that the relationship is weak or even there is no relationship between the two variables.

Normality of Error

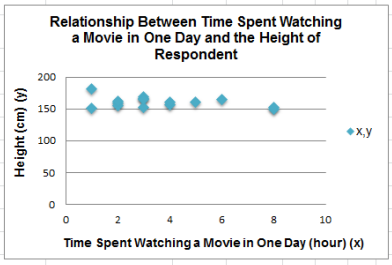
Based on the assumption of normality of error, the regression line **Y = 165.54 + (-1.46) X** is also quite difficult or even cannot be used because of the 4 existing normality theories, none of the theories can fulfill the regression line.

Number 1 | Number 2 (a & b) | Number 2 (c) | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | **Number 4 (c)**

Ready 100%

F16 =STDEV.S(B3:B17)

Name	Time Spent Watching a Movie in One Day (hour) (X)	Height (cm) (Y)
Syarifah Balqies Al-Haddad	6	165
Aghil Adrian Aryananda	2	159
Ahmad Akhyar	3	166
Chandra Sakti Prabowo	1	181
Ainul Mardhiah Hasan	5	160
Nur Amalia Ramadhani	8	150
Jihan Nasyifa Arwana	4	156
Regina Farah Nafilah	4	160
Inayah Salsabil	3	152
Iin Fatimah Tri Utami	2	155
Adilah Zahirah Fitri Djerman	2	162
Mawaddah Warahmah	1	151
Nur Febrianti Bakri	8	152
Andi Muthi'ah Ilham	3	169
Andi Ahyar	3	165
Total	**55**	**2403**



	X	Y
Mean	3.67	160.2
Median	3	160
Standard Deviation	2.225	8.291

Linearity

Based on the linearity assumption of the regression line **Y = 165.54 + (-1.46) X** is quite difficult or even unusable because visually through the scatter plot it can be seen that there are no linear lines in the scatter plot, even only forming a straight line. In addition, the scatter plot also explains that the relationship is weak or even there is no relationship between the two variables.

Normality of Error

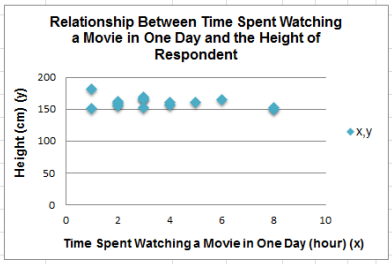
Based on the assumption of normality of error, the regression line **Y = 165.54 + (-1.46) X** is also quite difficult or even cannot be used because of the 4 existing normality theories, none of the theories can fulfill the regression line.

Number 1 | Number 2 (a & b) | Number 2 (c) | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | **Number 4 (c)**

Ready 100%

G16 =STDEV.S(C3:C17)

Name	Time Spent Watching a Movie in One Day (hour) (X)	Height (cm) (Y)
Syarifah Balqies Al-Haddad	6	165
Aghil Adrian Aryananda	2	159
Ahmad Akhyar	3	166
Chandra Sakti Prabowo	1	181
Ainul Mardhiah Hasan	5	160
Nur Amalia Ramadhani	8	150
Jihan Nasyifa Arwana	4	156
Regina Farah Nafilah	4	160
Inayah Salsabil	3	152
Iin Fatimah Tri Utami	2	155
Adilah Zahirah Fitri Djerman	2	162
Mawaddah Warahmah	1	151
Nur Febrianti Bakri	8	152
Andi Muthi'ah Ilham	3	169
Andi Ahyar	3	165
Total	**55**	**2403**



	X	Y
Mean	3.67	160.2
Median	3	160
Standard Deviation	2.225	8.291

Linearity

Based on the linearity assumption of the regression line **Y = 165.54 + (-1.46) X** is quite difficult or even unusable because visually through the scatter plot it can be seen that there are no linear lines in the scatter plot, even only forming a straight line. In addition, the scatter plot also explains that the relationship is weak or even there is no relationship between the two variables.

Normality of Error

Based on the assumption of normality of error, the regression line **Y = 165.54 + (-1.46) X** is also quite difficult or even cannot be used because of the 4 existing normality theories, none of the theories can fulfill the regression line.

Number 1 | Number 2 (a & b) | Number 2 (c) | Number 3 (a) | Number 3 (b) | Number 4 (a) | Number 4 (b) | **Number 4 (c)**

Ready 100%