

## *WEIGHT*

Solve.....Using the graph.

### *Determine*

1. What is the average weight of the class in ounces?
2. What is this value in pounds?
3. What is this value in kilograms?
4. Find a friend's weight in ounces and pounds.

### *Interpret*

5. What is the greatest weight of the class in kilograms?
6. How many students weigh 3600 ounces?
7. How many students weigh 59 kilograms?
8. How many students weigh between 120 and 125 pounds?
9. Concerning the above question, what is the distance in inches between these various points and determine the linear equations and intercepts?

## The scientific method

The purpose of this exercise is to introduce non-science majors to the scientific process. Scientist follows a particular pattern of discovery called the scientific method.

1. Observation and description of a phenomenon.
2. Formulation of a hypothesis to explain the phenomena.
3. Use of the hypothesis to predict the existence of other phenomena, or to predict quantitatively the results of new observations.
4. Performance of experimental tests of the predictions by several independent experimenters and properly performed experiments. If the experiments bear out the hypothesis it may come to be regarded as a theory or law of nature. If the experiments do not bear out the hypothesis, it must be rejected or modified.

In this exercise you will use general data taken from your class and use it to provide you an opportunity to experience for yourself what is a scientist and what they do. You should know scientist investigate and discover things, but how? By, using the four steps listed above. They observe, come up with an idea-hypothesis, make predictions, and perform experiments. So, too you yourself observe things when you walk into class. You look for a seat and notice how many people may be in the class. While sitting surely you come up with some ideas and make predictions, and you might even perform experiments to see if certain people are friendly.

Here we have certain formulized ideas-hypothesis concerning height and weight distributions of an average person in a given crowd such as the classroom. The experiment we used was a survey to collect raw data. Now you must with the help of Excel organize the data and interpret the results to determine if our ideas are accurate.

The raw data will be converted into a graph and used as a visual aid and this graph **MUST** be used to **SHOW** where the graph **SUPPORTS** certain **RESULTS**, **PREDICTIONS**, and **INTERPRETATIONS**.



# Columns

A	B	C	D
Weight-lb	Total #	Weight-kg	Sorted
270	1	122.449	0
260	2	117.9138	0
170	3	77.09751	0
180		81.63265	0
135			52.1542
193			53.51474
118			54.42177
130			0
220			0
130			56.68934
125			56.68934
160			0
130			58.95692
270			0
255			0
240			58.95692
110			0
110			0
175			0
210			0
160			61.22449
195			61.22449
245			0
150			0
180			0
170			0
360			65.75964
200			0
160			0
147			68.02721
145			0
125			0
200			0
140			68.02721
125			70.29478
115			0
130			0
130			72.56236
208			0
145			0
125			0
170			74.82993
210			74.82993
160			0
139			0
150			0
175			77.09751
160			0
150			0
185			0
		79.36508	0
		72.56236	0
	1	68.02721	0
	2	83.90023	0

A1 → TITLE  
 A2...A56 → DATA  
 A58 → FORMULAS  
 INSERT FUNCTION  
 AVERAGE, OK  
 A2:A56, OK

B1 → TITLE  
 B2 → 1  
 B3 → = +B2+1  
 ENTER, HOME, COPY  
 B4...B56  
 HOME, PASTE

C1 → TITLE  
 C2 → =(?)  
 "YOU MUST INSERT THE APPROPRIATE  
 CONVERSION FORMULA CONVERTING  
 COLUMN A POUNDS INTO COLUMN C  
 KILOGRAMS, " USE: 1kg = 2.205 lb  
 ENTER FORMULA  
 COPY & PASTE C3...C56  
 C58 → FORMULAS  
 INSERT FUNCTION  
 AVERAGE, OK  
 C2:C56, OK

D1 → TITLE  
 HIGHLIGHT  
 C2...C56  
 HOME, COPY  
 D2...D56  
 HOME  
 PASTE SPECIAL  
 VALUES OF  
 DATA, SORT  
 ↓ Small to large  
 CONTINUE WITH  
 Current Selection  
 SORT

Columns

	E ←	F
0		0
50.79365	STARTING AT	1
0		0
53.51474	E2, MINIMALLY	1
0		0
0	INPUT ENTRY	0
58.5034	UNKNOWN VALUE	1
0	FROM COLUMN	0
0	INTO COLUMN E	0
63.03855	using	1
0		0
65.75964	COPY/PASTE	2
0		0
68.02721	TECHNIQUE	5
0		0
72.56236	OK,	6
0	IT MAY BE EASIER	0
77.09751	TO USE	4
79.36508	SELECTION COMMAND	2
0		0
87.52834	Ctrl "C"	1
0		0
90.70295	Then paste	2
0	according to	0
0	the number of	0
95.2381	selected	2
99.77324	ENTRIES.	2
0		0
0		0
111.1111		1
0		0
117.9138		1
122.449		2
0		0
0		0

"DATA"  
REMOVE  
DUPLICATES  
COMMAND

→34

F2 → = COUNTIF (D2:D56, E2)  
HOME, COPY; F3...F33  
HOME, PASTE  
F35 → FORMULAS  
INSERT FUNCTION  
SUM, OK  
F2... F33

Weight-oz	G ←	H ←	I
0		0	0
4160	G1 → TITLE	1792	H2 → = (?)
0		0	0
0	G2 → = (?)	1888	INSERT
0		0	CONVERSION
3088	CONVERSION	0	FORMULA
0		2064	CONVERSION
2080	FORMULA	0	COLUMN E
3520	CONVERSION	0	COLUMN F
0		2224	Kilograms
0	COLUMN A	0	INTO
0	POUNDS	2320	COLUMN H
2560	INTO COLUMN	0	
2080	G, ounces	2400	OUNCES
0		0	use:
4080	use lb = 16oz	2560	kg = 35.28 oz
3840	ENTER	0	ENTER
0		2720	FORMULA
1760	FORMULA	2800	FORMULA
2800	COPY/PASTE	0	COPY/PASTE
0		0	H3... H33
2560	G3... G56	3088	
0		0	
3920	G58	3200	
0		0	
2880	INSERT	0	
0	AVAILABLE	0	
0	FUNCTION	0	
5760		3360	
0		3520	
2560		0	
2352		0	
0		3920	
2000		0	
0		4160	
2240		4320	
2000		0	
0		0	
2080		0	
0			
0			
2320			
2000			
0			
0			
2560			
0			
2400			
0			
2560			
2400			
0			

→34

I2 → = COUNTIF (D2:D56, H2/35.28)  
HOME, COPY; I3...I33  
HOME, PASTE  
I35 → FORMULAS  
INSERT FUNCTION  
SUM, OK  
I2... I33

## *Graph Instructions*

Starting From: HIGHLIGHT-----→ H1:I33  
INSERT  
    CHART  
        CHART TYPE: Line /w Markers  
        DATA: Select Data  
Datarange ( should be inserted via highlight command )  
    H1:I33 or formula =sheet1!\$H\$1:\$I\$33  
    NEXT  
DESIGN  
    Chart Styles ( choose Black to prevent coloring)  
LAYOUT (Labels)  
    CHART TITLE: above chart: Weight Distribution  
    Horizontal AXIS: below axis: Weight-oz  
    Vertical AXIS: rotated title: Students  
GRIDLINES  
    Horizontal AXIS  
        NONE  
LEGEND  
    NONE  
TRENDLINE  
    More Options  
    POLYNOMINAL (2)  
    CLOSE

*To View or Print graph*

Place pointer in the graph but away from box area and left click

FILE

    PRINT PREVIEW or PRINT

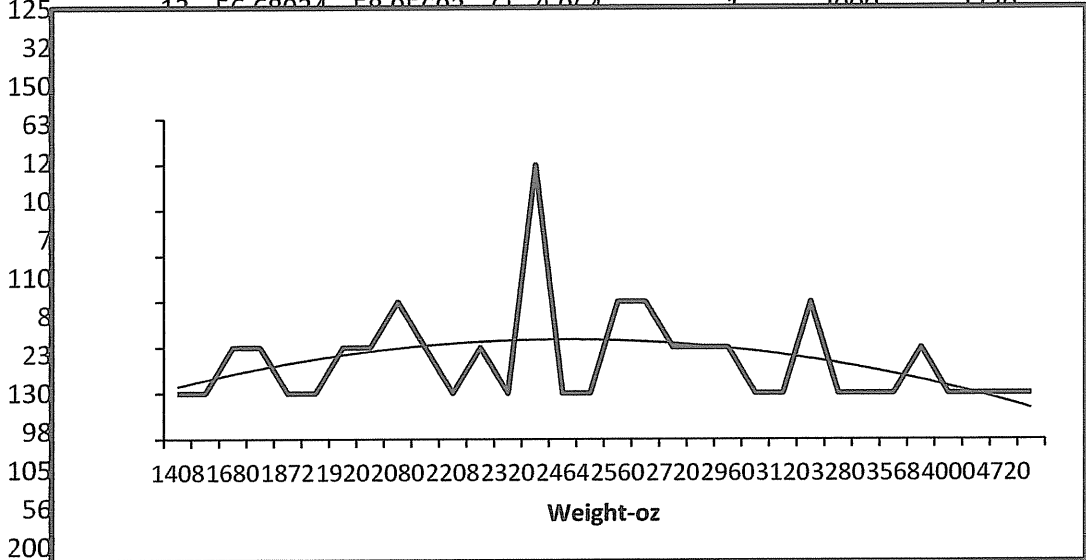
*To View or Print worksheet*

Place pointer away from the graph and left click on the worksheet

FILE

    PRINT PREVIEW or PRINT

Weight-lb	Total #	Weight-kg	Sorted	Weight-oz				
9	1	4.081633	39.9093	39.9093	1	144	1408	1
5	2	0	45.35147	0	4	80	0	4
12	3	5.442177	47.61905	47.61905	2	192	1680	2
5	4	2.267574	47.61905	49.88662	2	80	1760	2
45	5	0	49.88662	53.06122	1	720	1872	1
25	6	11.33787	49.88662	0	4	400	0	4
23	7	0	53.06122	54.42177	2	368	1920	2
98	8	44.44444	53.51474	56.68934	2	1568	2000	2
45	9	20.40816	54.42177	58.95692	3	720	2080	3
86	10	39.00227	54.42177	0	4	1376	0	4
63	11	28.57143	56.68934	62.58503	1	1008	2208	1
75	12	34.01361	56.68934	63.49206	2	1200	2240	2
125	13	56.68934	58.95692	65.75964	1	2000	2320	1
32	14	0	62.58503	68.02722	1	144	0	6
150	15	0	68.02722	70.29478	1	144	0	1
63	16	0	70.29478	72.56236	1	144	0	1
12	17	0	72.56236	74.82993	2	144	0	2
10	18	0	74.82993	77.09751	2	144	0	2
7	19	0	77.09751	79.36509	2	144	0	2
110	20	0	79.36509	81.63265	1	144	0	2
8	21	0	81.63265	83.90023	1	144	0	1
23	22	0	83.90023	86.16781	1	144	0	1
130	23	0	86.16781	88.43539	1	144	0	0
98	24	0	88.43539	90.70295	1	144	0	3
105	25	0	90.70295	92.97053	1	144	0	1
56	26	0	92.97053	95.23811	1	144	0	1
200	27	0	95.23811	97.50569	1	144	0	1
25	28	11.33787	69.84127	102.0408	2	400	3600	2
3	29	1.360544	70.29478	0	4	48	0	4
105	30	47.61905	72.56236	122.449	1	1680	4320	1
2	31	0.907029	0	133.7868	1	32	4720	1
170	32	77.09751	72.56236	145.1247	1	2720	0	3
5	33	2.267574	74.82993			80		
8	34	3.628118	74.82993		62	128		64
88	35	39.9093	0			1408		
170	36	77.09751	77.09751			2720		
2	37	0.907029	77.09751			32		
2	38	0.907029	81.63265			32		
120	39	54.42177	81.63265			1920		
120	40	54.42177	83.90023			1920		
89	41	40.36281	0			1424		
180	42	81.63265	85.26077			0		
2	43	0.907029	0			32		
185	44	83.90023	90.70295			2960		
86.10909		38.4498				1325.382		



# Weight Distribution

