

Unit F: Statistics

Half Course V

HALF COURSE V

Unit F: Statistics

Hours: 10

General Learning Outcome:

Analyze data in graphical and tabular form to derive information and meaning.

The intent of this unit is to have students learn about the variability of data.

Specific Learning Outcomes

- F-1 Make and justify inferences from graphical and tabular data.
- F-2 Determine the percentile rank of an item in a set of sample data.
- F-3 Distinguish between percent and percentile rank.
- F-4 Use standard deviation to describe the variability within a set of data.
- F-5 Explain the variability of data using standard deviation and the normal curve.
- F-6 Describe the relationship between the correlation coefficient and two data sets.

Instructional Materials

- *Essentials of Mathematics 12*
- ruler
- scientific calculator

STATISTICS

Assessment

- daily assignments
- journal questions
- unit test
- projects

Note

For this unit, the use of technology is highly recommended, including

- STAT mode on a scientific calculator
- graphing calculator
- computer spreadsheet
- statistics software

**PRESCRIBED LEARNING
OUTCOMES**

SUGGESTIONS FOR INSTRUCTION

General Outcome

Analyze data in graphical and tabular form to derive information and meaning.

Specific Outcome(s)

F-1 make and justify inferences from graphical and tabular data

F-2 determine the percentile rank of an item in a set of sample data

F-3 distinguish between percent and percentile rank

Students are expected to draw and validate inferences throughout this unit.

Percentile Rank: The percentage of scores that fall below a particular score.

$$\text{Percentile rank} = \left(\frac{B + 0.5E}{n} \right) \times 100$$

where B = the number of raw scores below a given score

E = the number of raw scores equal to, and including, the given score. However, if there are no scores equal to the given score, then $E = 1$.

n = the total number of raw scores

Example

500 job applicants wrote an exam. One applicant scored 65%. 380 applicants scored lower than she did, and 23 other applicants also scored 65%. What is her percentile rank?

Solution

$$B = 380$$

$$E = (23 + 1) = 24$$

$$n = 500$$

$$\text{Percentile rank} = \left(\frac{380 + 0.5(24)}{500} \right) \times 100 = 78.4$$

Round up all decimals to the next whole number, so percentile rank = 79.

Therefore, 79% of all applicants scored lower than this applicant, or this applicant scored better than 79% of all applicants.

- | | |
|------------------------------|-------------------|
| ✓ Communications | ✓ Patterns |
| ✓ Connections | ✓ Problem Solving |
| ✓ Number Sense | ✓ Reasoning |
| ✓ Organization and Structure | ✓ Technology |
| | ✓ Visualization |

— *continued*

SUGGESTIONS FOR ASSESSMENT

Mental Math

1. What percent of students scored less than P_{28} ?
2. What percent of students scored more than P_{28} ?

Various pencil-and-paper tasks such as student work, quizzes, and tests may be used for assessment.

This unit lends itself to a project where students are given a set of data that they use to find a percentile rank, standard deviation, correlation coefficient, etc.

Sample Question 1

A total of 3286 students wrote a university entrance examination. Student X and 432 other students had a score of 891 out of 1200. There were 2279 students who scored lower than 891.

In order to gain entrance, a given student needed a percentile ranking of 70 or better.

- a) What was the percentile ranking of Student X?
- b) Did Student X score high enough to gain entrance into the university?

Solution

$$\text{a) Percentile Rank} = \left(\frac{B + 0.5E}{n} \right) \times 100$$

$$B = 2279$$

$$E = 433 (432 + 1)$$

$$n = 3286$$

$$\begin{aligned} \text{Percentile Rank} &= \left(\frac{2279 + 0.5(433)}{3286} \right) \times 100 \\ &= 75.9 \text{ or} \\ &= 76\text{th percentile} \end{aligned}$$

Therefore, this student scored better than 76% of all other students.

- b) Yes, this student scored high enough to gain entrance into the university.

SUGGESTED LEARNING RESOURCES

Print

Baron, C., et al. *Essentials of Mathematics 12*. Victoria, BC: British Columbia Ministry of Education, 2003. [ISBN 0-7726-4997-9]

Freund, John E., and Gary A. Simon. *Statistics: A First Course*. 6th ed. Englewood Cliffs, NJ: Prentice-Hall, 1995. [ISBN: 0-13-844523-0]

Newmark, Joseph. *Statistics and Probability in Modern Life*. 6th ed. Toronto, ON: Harcourt Brace Jovanovich, 1997. [ISBN: 0-03-006393-0]

Rossman, Allan J., Beth L. Chance, and Barr von Oehsen. *Workshop Statistics: Discovery with Data and the Graphing Calculator*. 2nd ed. New York, NY: Springer Verlag, 2000. [ISBN: 0-387-94997-6]

The statistics section of most Senior Years mathematics texts can serve as a resource for further examples and questions.

Internet

<www.statcan.ca>

**PRESCRIBED LEARNING
OUTCOMES**

- F-1 make and justify inferences from graphical and tabular data
– *continued*
- F-2 determine the percentile rank of an item in a set of sample data
– *continued*
- F-3 distinguish between percent and percentile rank
– *continued*

SUGGESTIONS FOR INSTRUCTION

The following notation is used to represent percentile rank:
 P_{79} is equivalent to the 79th percentile

P_{25} , P_{50} , and P_{75} are special percentile ranks that represent the lower quartile, the mean, and the upper quartile, respectively.

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|------------------------------|-------------------|
| ✓ Communications | ✓ Patterns |
| ✓ Connections | ✓ Problem Solving |
| ✓ Number Sense | ✓ Reasoning |
| ✓ Organization and Structure | ✓ Technology |
| | ✓ Visualization |

SUGGESTIONS FOR ASSESSMENT

SUGGESTED LEARNING
RESOURCES**Sample Question 2**

Two students from different schools were comparing their recent test results. These results are summarized in the following table.

Student	# of Scores Below Student Score	# of Scores Equal to Student Score	# of Students in Each Class
A	18	1	24
B	16	5	26

- a) Determine which student did better by calculating the percentile rank for each.
- b) Explain the meaning of each percentile rank.

Solution

$$\text{a) Student A} = \frac{18 + 0.5(2)}{24} \times 100$$

$$= 79.16 \text{ or } 80\text{th percentile}$$

$$\text{Student B} = \frac{16 + 0.5(6)}{26} \times 100$$

$$= 73.07 \text{ or } 74\text{th percentile}$$

Therefore, Student A did better.

- b) Student A scored better than 80% of all other students in the class.

Student B scored better than 74% of all other students in the class.

**PRESCRIBED LEARNING
OUTCOMES**

F-4 use standard deviation to describe the variability within a set of data

SUGGESTIONS FOR INSTRUCTION

Standard deviation (S_x) is a measure of the variability of data. It measures the extent to which the data are spread from the mean. The formula for standard deviation is:

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

Note: S_x is read "sigma x" and represents the standard deviation of a sample.

The steps to calculate standard deviation are as follows:

1. Find the mean of the numbers (\bar{x}).
2. Find the difference between each number and the mean.
3. Find the squares of the differences.
4. Find the sum of these squares.
5. Divide the sum of the squares by $n - 1$.
6. Find the square root of this number.

Whenever possible, students should be permitted to determine standard deviation using graphing calculators/ statistics software/spreadsheets.

Example

Five hockey fans were surveyed to determine the number of hockey games they attended throughout the season. The results were 6, 7, 8, 8, 10.

1. Calculate the mean: $\bar{x} = \frac{39}{5} = 7.8$
2. Complete the table:

No. of Games	Difference from Mean	Square of Difference
(x)	($x - \bar{x}$)	($x - \bar{x}$) ²
6	-1.8	3.24
7	-0.8	0.64
8	0.2	0.04
8	0.2	0.04
10	2.2	4.84

- ✓ Communications Patterns
- ✓ Connections ✓ Problem Solving
- ✓ Number Sense ✓ Reasoning
- ✓ Organization and ✓ Technology
- Structure Visualization

— continued

SUGGESTIONS FOR ASSESSMENT

Sample Question 1

A volleyball coach measured the heights (cm) of the players on the team and found them to be: 172 176 176 178 180 181 181 182 184 184 187.

- a) Determine the range.
- b) Determine the mean.
- c) Complete the table and determine the standard deviation for this set of data.

Heights in cm x	Difference from Mean $x - \bar{x}$	Square of the Difference $(x - \bar{x})^2$
Sum of the squares $\sum (x - \bar{x})^2$		

SUGGESTED LEARNING RESOURCES

Print

Senior 4 Consumer Mathematics (45S) Part V: A Course for Distance Learning.
 Winnipeg, MB: Manitoba Education and Training, 2000.
 — Module 4, Lesson 2

Freeware and Shareware

Both *WinStat* (freeware/PC) and *SchoolStat* (shareware/MAC) are located at:
www.edfac.unimelb.edu.au/DSME/TAME_SOFT.html

**PRESCRIBED LEARNING
OUTCOMES**

F-4 use standard deviation to describe the variability within a set of data
– *continued*

SUGGESTIONS FOR INSTRUCTION

3. Find the sum of the squares:

$$3.24 + 0.64 + 0.04 + 0.04 + 4.84 = 8.8$$

4. Divide the sum of squares by $n - 1$: $\frac{8.8}{4} = 2.2$

5. Find the square root of this number: $Sx = \sqrt{2.2} = 1.48$

Note: When comparing sets of data, if the standard deviation of one set is low, the data are close to the mean. However, if the standard deviation of the other is higher, the data are more spread out from the mean.

✓ Communications	Patterns
✓ Connections	✓ Problem Solving
✓ Number Sense	✓ Reasoning
✓ Organization and Structure	✓ Technology Visualization

SUGGESTIONS FOR ASSESSMENT

SUGGESTED LEARNING RESOURCES

Solution

- a) The range is 15 cm.
- b) The mean is 180.1 cm.
- c) Completed table:

Height (cm) x	Difference from Mean $x - \bar{x}$	Square of the Difference $(x - \bar{x})^2$
172	-8.1	65.61
176	-4.1	16.81
176	-4.1	16.81
178	-2.1	4.41
180	-0.1	0.01
181	0.9	0.81
181	0.9	0.81
182	1.9	3.61
184	3.9	15.21
184	3.9	15.21
187	6.9	47.61
Sum of the squares $\sum (x - \bar{x})^2$		186.91

$$S_x = \sqrt{\frac{186.91}{10}}$$

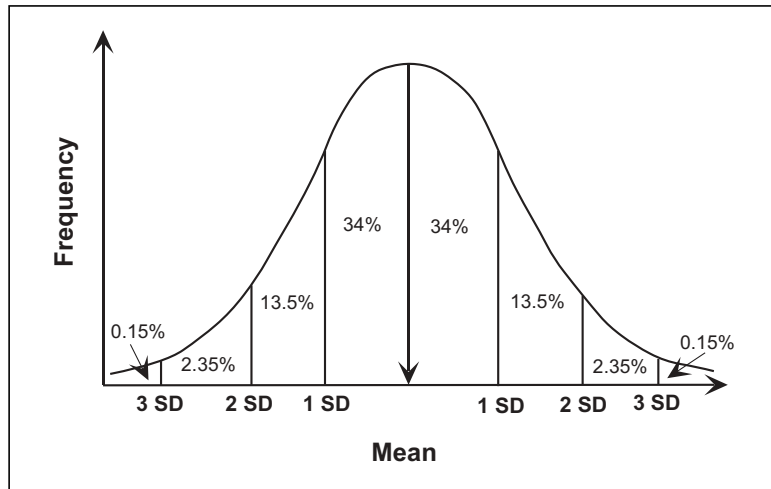
$$= 4.32 \text{ cm}$$

**PRESCRIBED LEARNING
OUTCOMES**

F-5 explain the variability of data using standard deviation and the normal curve

SUGGESTIONS FOR INSTRUCTION

The normal curve:



The graph shows that 68% (34% + 34%) of all the data will fall within one standard deviation of the mean. 95% of all the data will fall within two standard deviations of the mean and 99.7% of all data are within 3 standard deviations of the mean. Approximately 5% of all data will fall more than two standard deviations from the mean.

Example

A hospital finds that the average stay is five days, with a standard deviation of one day. Assume a normal distribution.

- a) What percent of patients stay at the hospital between four and five days?
- b) If 200 patients are admitted today, how many will stay more than six days?

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|------------------------------|-------------------|
| ✓ Communications | Patterns |
| ✓ Connections | ✓ Problem Solving |
| ✓ Number Sense | Reasoning |
| ✓ Organization and Structure | ✓ Technology |
| | ✓ Visualization |

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SUGGESTIONS FOR ASSESSMENT

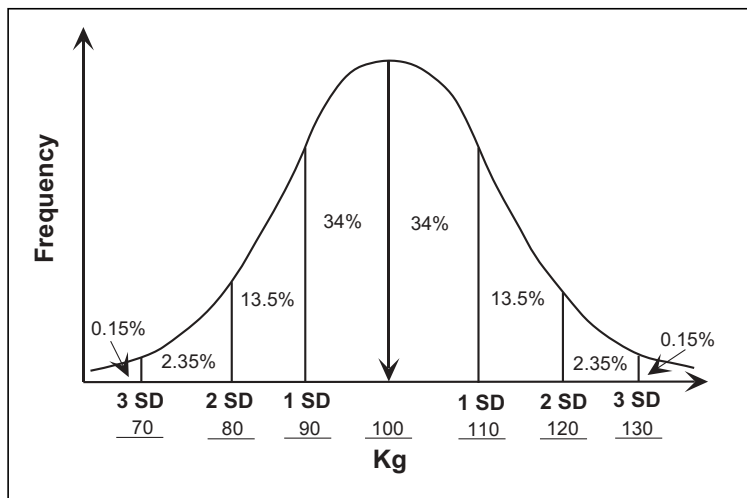
SUGGESTED LEARNING RESOURCES

Sample Question 1

A football coach graphed the weight of each player on his team and found that the data were distributed normally. The mean was 100 kg and the standard deviation was 10 kg.

- What percent of the players weigh between 90 kg and 110 kg?
- What percent of the players weigh more than 120 kg or less than 80 kg?
- If there are 45 players on the team, how many weigh more than 110 kg?

Solution



- 68% (34% + 34%)
- approximately 5% (2.5% + 2.5%)
- $45 \times 16\% = 7.2$ or approximately 7 players

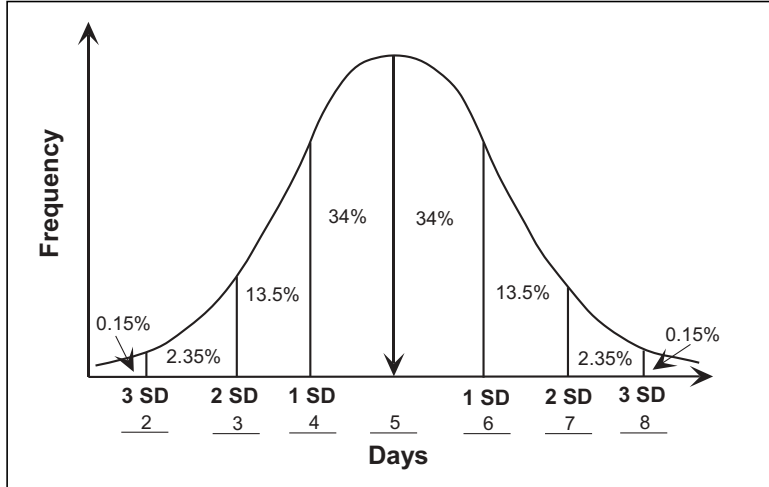
**PRESCRIBED LEARNING
OUTCOMES**

F-5 explain the variability of data using standard deviation and the normal curve
– *continued*

SUGGESTIONS FOR INSTRUCTION

Solution

- a) 34%
- b) 16% of 200 = 32



- ✓ Communications Patterns
- ✓ Connections ✓ Problem Solving
- ✓ Number Sense Reasoning
- ✓ Organization and ✓ Technology
- Structure ✓ Visualization

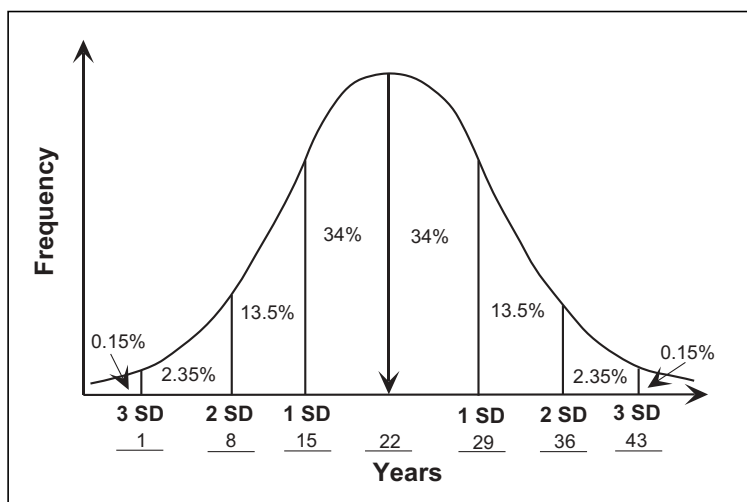
SUGGESTIONS FOR ASSESSMENT

SUGGESTED LEARNING
RESOURCES**Sample Question 2**

The personnel manager of a business employing 2000 people found that the average term of employment was 22 years with a standard deviation of 7 years. Assuming that the data are distributed normally:

- What percent of the employees will work more than 15 years?
- How many employees will work between 15 and 29 years?
- How many employees will work longer than 29 years?

Solution



- 84% ($34\% + 34\% + 13.5\% + 2.35\% + 0.15\%$)
- $2000 \times 64\% = 1280$ employees
- $2000 \times 16\% = 320$ employees

**PRESCRIBED LEARNING
OUTCOMES**

F-6 describe the relationship between the correlation coefficient and two data sets

SUGGESTIONS FOR INSTRUCTION

The correlation coefficient, r , is useful to determine the strength of the **linear relationship** that may exist between two sets of data. It is important to note that not all correlation is linear, but for the purposes of this course, only linear correlation will be considered. The data used to calculate the correlation coefficient can be expressed in two ways: either in table format or in a two-dimensional scatterplot. For the purposes of this lesson, there are three ways that data can be described on a scatterplot. These are:

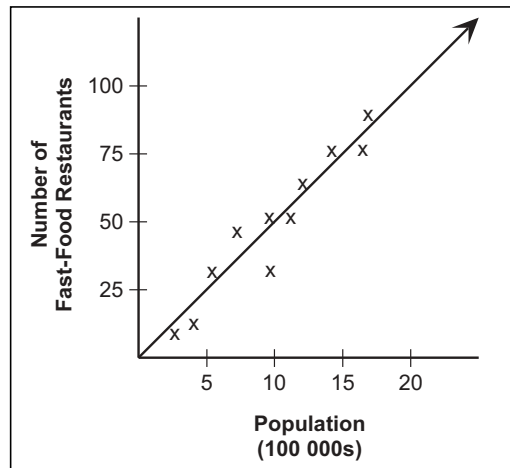
1. **Positive correlation:** means that as one variable *increases*, another variable also *increases*, or that as one variable *decreases*, another variable *decreases* as well. The r -value used to describe a positive correlation falls between the values 0 and +1. Stronger positive correlation is indicated by an r -value closer to +1. Weaker positive correlation is indicated by an r -value closer to 0. This can be illustrated by the following example.

Example 1

The population of various cities (on the x -axis) is plotted versus the number of fast-food restaurants in the city (on the y -axis). Generally, the more people there are living in a particular city, the more fast-food restaurants there are.

As can be seen, most of the points tend to fall along a straight line that rises from left to right.

This represents a fairly strong positive correlation. In other words, we can conclude that the larger the population, the greater the number of fast-food restaurants.



— *continued*

✓ Communications	Patterns
Connections	✓ Problem Solving
Number Sense	✓ Reasoning
✓ Organization and Structure	✓ Technology
	✓ Visualization

SUGGESTIONS FOR ASSESSMENT

SUGGESTED LEARNING
RESOURCES**Sample Question 1**

Predict whether each of the following will exhibit positive, negative, or zero correlation. In addition, write a statement that describes this relationship. The first one has been done for you.

- a) population of a country versus number of houses
Answer: A strong positive correlation. As the population of a country increases, the number of houses increases.
- b) number of students in a classroom versus day of the week
- c) person's age versus person's shoe size
- d) selling price of lumber versus the amount of lumber purchased
- e) number of kilometres on a vehicle's odometer versus age of the vehicle
- f) number of hours studied for a test versus score on that test
- g) number of red M&Ms in 10 bags versus the number of pages in 10 books
- h) number of staples in a stapler versus the room number the stapler is in

Solution

- a) Positive correlation: As the population of a country increases, the number of residential housing units increases.
- b) Zero correlation: There is no relationship between the number of students in a classroom and the day of the week.
- c) Positive correlation: There is a slight positive correlation between a person's age and shoe size.
- d) Negative correlation: As the selling price of lumber increases, the volume of lumber purchased decreases.
- e) Positive correlation: As the number of kilometres on a vehicle's odometer increases, the age of the vehicle increases.
- f) Positive correlation: As the number of hours studied for a test increases, the test score increases.
- g) Zero correlation: There is no relationship between the number of red M&Ms in 10 bags and the number of pages in 10 books.
- h) Zero correlation: There is no relationship between the number of staples in a stapler and the number of the room the stapler is in.

**PRESCRIBED LEARNING
OUTCOMES**

F-6 describe the relationship between the correlation coefficient and two data sets
– *continued*

SUGGESTIONS FOR INSTRUCTION

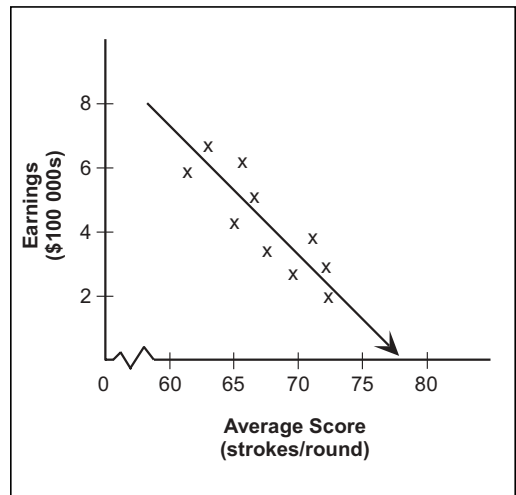
2. **Negative correlation:** means that as one variable *increases*, another variable *decreases*, or that as one variable *decreases*, another variable *increases*. The *r*-value used to describe a negative correlation falls between the values of 0 and -1 . Stronger negative correlation is indicated by an *r*-value closer to -1 . Weaker negative correlation is indicated by an *r*-value closer to 0. This can be illustrated by the following example.

Example 2

A golfer's average scores are plotted versus the money earned in tournaments. Generally, the lower the golf score, the higher the earnings, or, the higher the golf score, the lower the earnings.

As can be seen, most of the points tend to fall along a straight line that falls from left to right.

It represents a fairly strong negative correlation. In other words, we can conclude that the lower the average score, the greater the earnings.



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|-------------------------------------|--------------------------|
| ✓ Communications | Patterns |
| Connections | ✓ Problem Solving |
| Number Sense | ✓ Reasoning |
| ✓ Organization and Structure | ✓ Technology |
| | ✓ Visualization |

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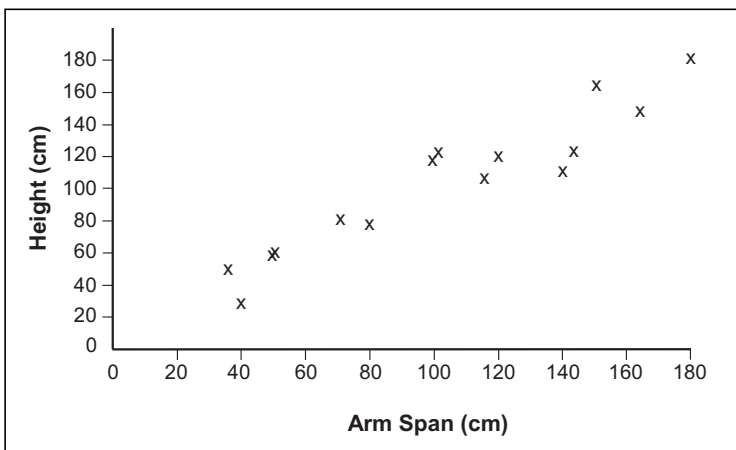
SUGGESTIONS FOR ASSESSMENT

SUGGESTED LEARNING RESOURCES

Sample Question 2

For each of the following graphs, state the type of correlation that exists (strong positive, weak positive, etc.), describe the relationship between the two variables, and then choose the number that best describes this correlation.

a) person's arm span (cm) compared to his height (cm)



<i>r</i> -value choices
0.97
0.12
-0.12
-0.97

Solution

A very strong positive correlation.

There is a very strong positive correlation between a male's arm span and his height. This suggests that the longer a male's arm span, the taller he is; or the taller he is, the longer his arm span.

$r = +0.97$

PRESCRIBED LEARNING OUTCOMES

F-6 describe the relationship between the correlation coefficient and two data sets
 – *continued*

SUGGESTIONS FOR INSTRUCTION

3. **Zero correlation:** means that the variables in question essentially have nothing to do with each other and, therefore, cannot be said to be related. The r -value used to describe a zero correlation would be very close to or equal to 0. This can be illustrated by the following example.

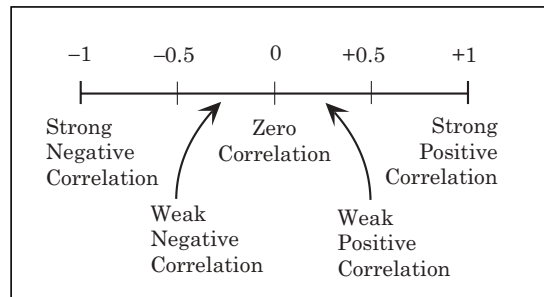
Example 3

A person’s street address (house number) is plotted versus her mass in kg.

As can be seen, there is no obvious positive or negative correlation between house number and mass.



When calculated, the value of r will lie between -1 and $+1$ (if not, a calculation error has occurred).



- ✓ **Communications** Patterns
- Connections ✓ **Problem Solving**
- Number Sense ✓ **Reasoning**
- ✓ **Organization and** ✓ **Technology**
- Structure ✓ **Visualization**

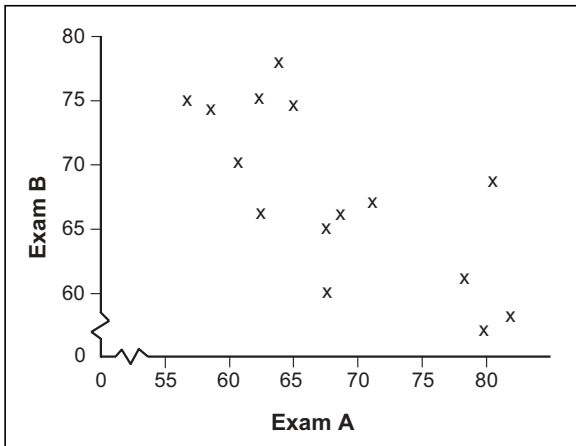
– *continued*

SUGGESTIONS FOR ASSESSMENT

SUGGESTED LEARNING
RESOURCES

Sample Question 2 (continued)

b) scores on Exam A and the scores on Exam B



<i>r</i> -value choices
0.75
0.05
-0.05
-0.75

Solution

A relatively strong negative correlation.

There is a relatively strong negative correlation between the scores on Exam A and Exam B. This suggests that the better a student scored on Exam A, the poorer the student scored on Exam B; or the poorer a student scored on Exam A, the better the student scored on Exam B.

$$r = -0.75$$

**PRESCRIBED LEARNING
OUTCOMES**

F-6 describe the relationship between the correlation coefficient and two data sets
– *continued*

SUGGESTIONS FOR INSTRUCTION

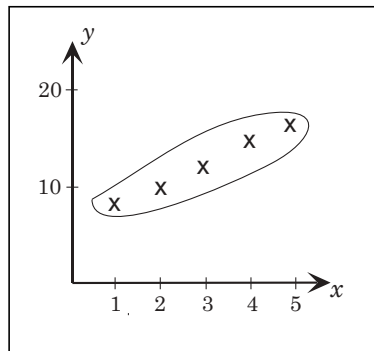
Example

Using technology, find the correlation coefficient for the following set of data.

x	2	4	3	1	5
y	10	12	11	8	15

Solution

A graph of the data in the table looks like this:



The correlation coefficient r is calculated to be 0.98.

An r -value of +0.98 means that there is a very strong positive correlation between the values of x and y . This means that as the value of x increases, so does the value of y .

For this outcome, the emphasis should be placed on interpretation. Examples and questions should focus on meaning rather than computation.

Whenever possible:

- graph the two data sets
- predict the correlation coefficient from the graph
- use technology to calculate the r value

Suggested technology

- scientific calculator (STATS mode)
- computer spreadsheet (see Appendix)
- statistics software
- graphing calculator

✓ Communications	Patterns
Connections	✓ Problem Solving
Number Sense	✓ Reasoning
✓ Organization and Structure	✓ Technology
	✓ Visualization

SUGGESTIONS FOR ASSESSMENT**SUGGESTED LEARNING
RESOURCES****Sample Question 3**

In the following problem, complete each of the following:

- create a scatterplot with appropriate x - and y -scales labelled
- from your scatterplot, determine the type of linear correlation (+, -, or 0)
- calculate the r -value using technology
- in a statement, describe the relationship between the two variables

The hours students studied for an exam versus the students' scores:

Student	Hours Studied	Exam Mark
1	8.5	88
2	2	44
3	3.5	63
4	4	58
5	7	89
6	6.5	92
7	3	50
8	8	81
9	5	57
10	6	72

**PRESCRIBED LEARNING
OUTCOMES**

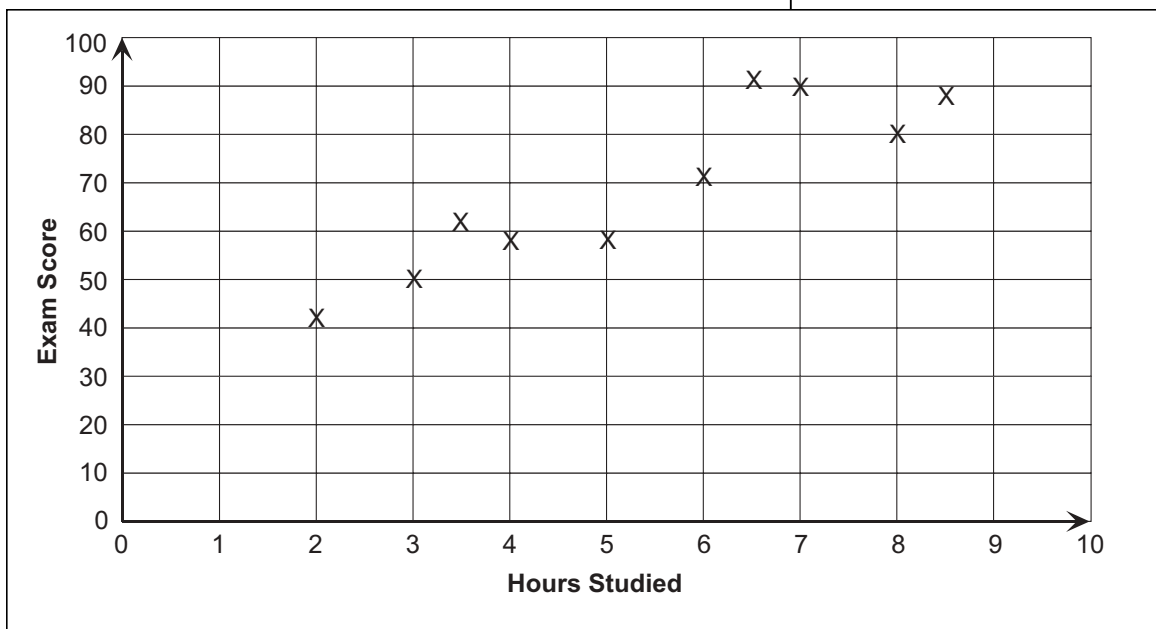
SUGGESTIONS FOR INSTRUCTION

SUGGESTIONS FOR ASSESSMENT

SUGGESTED LEARNING RESOURCES

Solution

a)



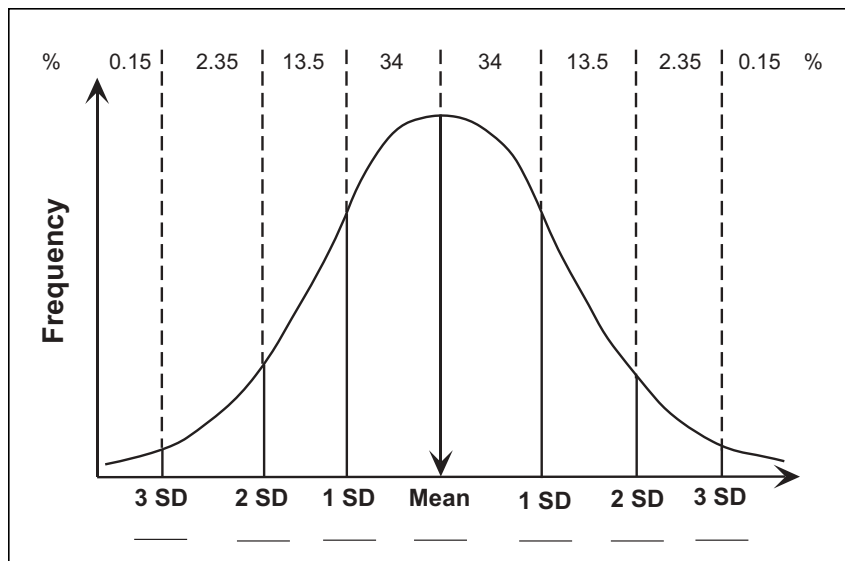
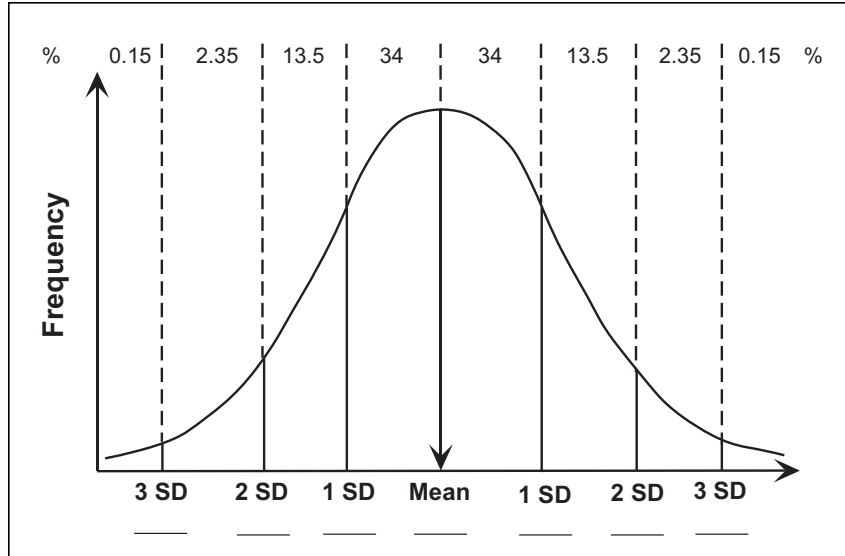
b) A strong positive correlation.

c) $r = +0.90$

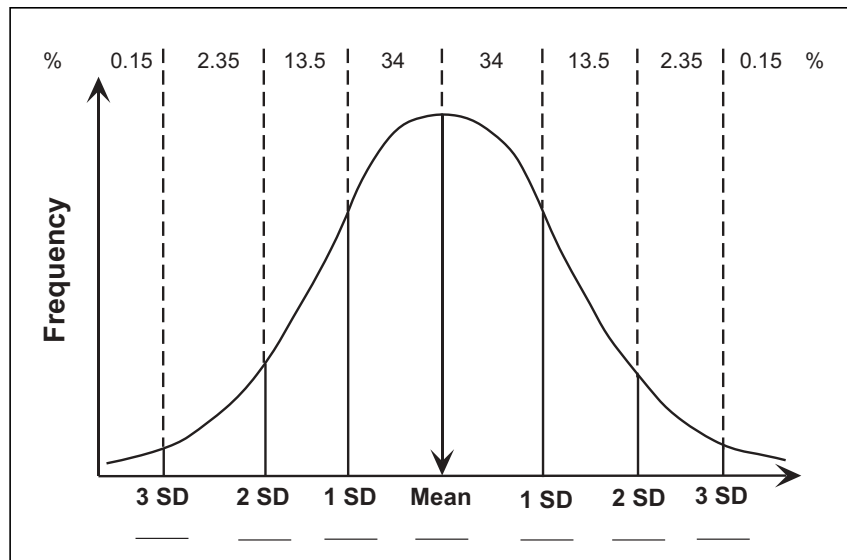
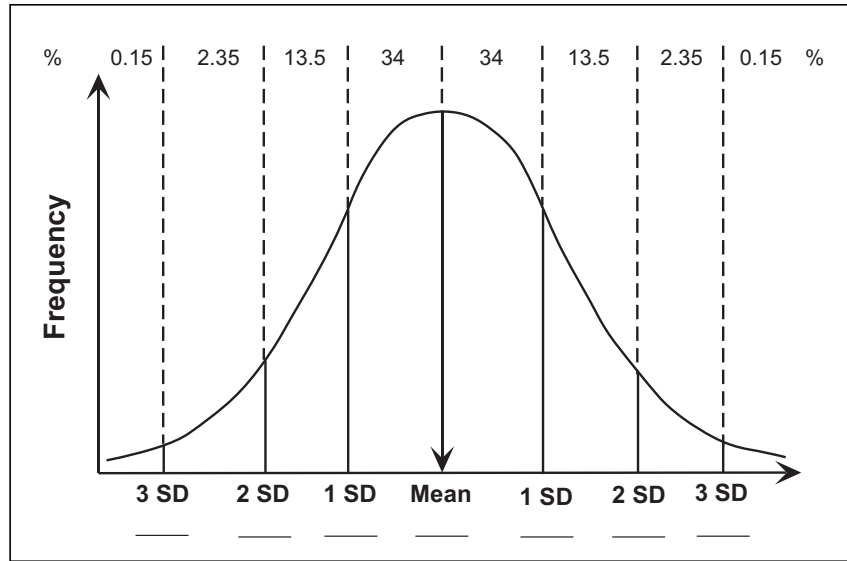
d) There is a strong positive correlation between the number of hours studied and the exam score for each student. This suggests that the longer a person studied, the better he or she did on the exam.

Appendix

Normal Distribution



Normal Distribution



Microsoft Excel Spreadsheet Templates

Microsoft Excel - Geneva

File Edit View Insert Format Tools Data Window Help

Geneva 9 B I U

E8

	A	B	C	D
1	Data Set 1			
2	15		Mean=	=AVERAGE(A2:A11)
3	20			
4	18		Standard Devation=	=STDEV(A2:A11)
5	22			
6	25			
7	36			
8	28			
9	29			
10	45			
11	50			
12				

Microsoft Excel - Correlation Coef

File Edit View Insert Format Tools Data Window Help

B12 =CORREL(A2:A11,B2:B11)

	A	B	C	D	E	F
1	Data Set 1	Data Set 2				
2	15	10	Formula entered in B12. Sample data entered in columns A and B			
3	20	18				
4	18	22				
5	22	23				
6	25	20				
7	36	34				
8	28	20				
9	29	29				
10	45	41				
11	50	48				
12		0.9559179		←-Correlation Coefficient		
13						

Statistics Canada Learning Resources

The following are selected pages from the STATCAN learning resources. This site contains a wide variety of lessons, activities, online surveys, data sets, charts, graphs, and links to related sites.

Statistics Canada Learning Resources

Website: <<http://www.statcan.ca/english/edu/index.htm>>

Email: infostats@statcan.ca

Statistics Canada Learning Resources



Statistics Canada Statistique Canada



Français	Contact Us	Help	Search	Canada site
The Daily Census	Canadian Statistics	Community Profiles	Our products and services	Home
			Other links	

Search Learning resources

Go!

Learning resources



Students

Data and information you need to get your assignments done.

Kids' Zone

Teachers

Data, publications and teaching tools created and selected for school teachers and teacher librarians.

Postsecondary

Data from the [Data Liberation Initiative](#) as well as other programs and products for in-depth research.



Canada's population clock
Best viewed with IE 6.0

[Canada at a Glance](#) (PDF format)

[Everything under the Canadian sun](#)
(Flash presentation)



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Teachers

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Teaching tools!

[Lesson plans](#) are sorted by level and subject.

[Teacher's kits](#) accompany publications or introduce specific data sets.

Resources for [Social Studies](#) courses, organized by province, grade, and major topic, and [Aboriginal Studies](#), link to relevant data.

[Thematic maps](#) and [population pyramids](#) show the change in population distribution.

Data and information

Use [Canadian Statistics](#) tables of national and provincial data in your classroom.

Learn about the [Canadian economy online](#). This one-stop guide to the national economy lets you check out statistics, access a wealth of federal government information and learn more about economic concepts and events.

Learn about the [Census](#).

[Community Profiles](#) display data and maps for all Canadian communities. [Lesson plan](#).

E-STAT: the educational research tool.

[Downloadable publications \(free\)](#): over 100 products.



[Student projects](#)



[2001 Census](#)

[Everything under the Canadian sun](#)
(Flash presentation)

Browse:



People



Economy



Land & resources



Nation



Statistical methods & reference

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Reference material

In depth contains selected articles from our analytic periodicals.

Statistics: Power from Data! explains how to collect and use data.

Recommended publications are useful in the classroom.


Other sites for you

Link to the Students page



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Lesson Plans

[Alphabetical list of all lesson plans](#)

Some files are in Adobe PDF format. Use the free [Adobe Acrobat Reader](#) to view them. [Troubleshooting PDFs](#)

Note: "Intermediate" covers senior elementary to junior high.

	Elementary	Intermediate	Secondary
Aboriginal Studies		X	
Agriculture		X	X
Arts	X	X	X
Business Studies and Economics		X	X
Canadian Studies		X	X
Career Education		X	X
Communication and Media Studies	X	X	X
Computer and Information Technology	X	X	X
Consumer Education		X	X
English as a Second Language	X	X	X
English Language Arts	X	X	X
Environmental Studies		X	X
Geography	X	X	X
Health and Physical Education	X	X	X
History and Social Studies	X	X	X
Home Economics and Family Studies	X	X	X
Law		X	X
Mathematics	X	X	X
Moral and Religious Studies		X	X
Multicultural Education		X	
Personal and Social Education		X	X
Science	X	X	X

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- [The Agri-Food Industry - It's Everywhere! II III](#)
- [Calculating Population Growth For a Region](#)
- [Canada at a Glance](#)
- [Canadian Reading Habits](#)
- [Catches and Landed Value of Fish](#)
- [Counting Canadians](#)
- [Creating Circles](#)
- [Families, 1996 Census](#)
- [Families, 2001 Census](#)
- [Figures Don't Lie, But ... IIa IIIa IIIb](#)
- [Follow the Guide For a Trip Back in Time IIa](#)
- [The Foods We Eat: A Recipe for Change II](#)
- [Graphing in the Information Age](#)
- [Household Environment Survey - School Edition](#)
- [How Does Your Province Stack Up?](#)
- [The Ice Storm 1998 Maps and Facts Activity](#)
- [Immigration](#)
- [Immigration and Citizenship, 1996 Census](#)
- [Immigration and citizenship, 2001 Census](#)
- [Important Decisions Don't Just Happen! Using data to plan your services](#)
- [Linguistic Diversity, 1996 Census](#)
- [The North American Beef Market: Competition Keeps It Lean II](#)
- [Online on the Farm II III](#)
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