



Girl Guides from Westwood High School.

FILE



# Scheduling appointments

**HYACINTH TUGMAN**  
Contributor

**W**ELCOME TO all my students. I hope you all had a wonderful holiday, and in the midst of it all, you were able to do some serious studies. Remember that in a few months it will be time for your exams.

This week, I will complete the unit with the final objectives. Students should be able to:

- Demonstrate the ability to plan, make the follow-up and manage appointments for an executive.
- State the importance and use of reminder systems.

There are various guidelines with which the receptionist must be familiar in scheduling appointments. For regular meetings, the receptionist should mark the executive's calendar at the beginning of the year. Some appointments may be scheduled and confirmed by mail. These will serve as a reminder to the parties involved. There are times when the executive may direct scheduling of an additional appointment for a visitor in the office. Sometimes it is necessary to make an appointment for an unexpected visitor. There are also occasions when the executive formulates his/her own appointments. To avoid confusion, the receptionist must compare his/her appointment schedule with the executive's and allow his/her appointments to take precedence over those he/she has previously scheduled. It is necessary for both the executive and the receptionist to work together in coordinating appointments.

## APPOINTMENTS

In order to ensure the smooth flow of appointments, it is important that the receptionist keeps an appointment schedule. The receptionist will immediately be able to see the names of visitors to the various departments on any given day. Once the appointment has been kept, it is usual to place a tick over the appropriate column.

The receptionist should also brief the executive on the nature of the visitor's call. In this way, preparation can be made before the visitor arrives. The purpose of the visit would also determine the length of time required. The time factor is very important when scheduling appointments for regular visitors.

When arranging appointments, the receptionist should not set up consecutive meetings of equal intensity. A competent receptionist will endeavour to stagger appointments throughout the day.

In an organisation which sees visitors between selected hours each day, care should be taken that appointments are selectively spaced based on the executive's scheduled activities.

Computers are widely used as a means of making appointments for clients or visitors to the organisation. For example, at resorts and hotels, people who call to make reservations are registered on the computer.

## CANCELLING APPOINTMENTS

In some offices, the receptionist is required to compose and type a letter to cancel appointments, and also to be able to use the correct telephone techniques, when it is necessary, to postpone appointments. There are certain procedures which the receptionist should follow. He/she will be required to contact the potential visitor. To do this, he/she should consult the reception register. Every effort should be made to contact the individual as soon as possible by telephone. This call should be followed by a letter confirming the cancellation of the appointment; the letter should be typed in duplicate so that the receptionist has a copy for reference.



Your assignment this week is in two parts:

1. (a) Examine the receptionist facilities currently in operation in your school and write a report to your principal suggesting how it could be improved, OR  
(b) Design appropriate reception facilities for your school and write a report to your principal explaining how your plan could be put into effect to the advantage of the institution.

2. Multiple choice: Choose one correct answer from the alternatives given.

1. Part of a receptionist's duties is to:

- (a) serve refreshments
- (b) provide information
- (c) direct visitors
- (d) check persons in and out of the office

2. A receptionist register is used to show:

- (a) all the persons visiting
- (b) records of visitors' signatures
- (c) records of incoming mail
- (d) records of all employees

3. When an unexpected visitor arrives, the receptionist should:

- (a) announce his/her arrival
- (b) ask the visitor to wait indefinitely
- (c) try to assist the visitor
- (d) inform the person he/she wishes to speak to

4. When accepting delivery of a package, the receptionist should:

- (a) open the package and inspect the content(s)
- (b) sign for the package once it is in good order
- (c) check to see who it's coming from
- (d) inform the addressee so he/she can sign for it

See you next week.

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# Business finance – Part 1

**YVONNE HARVEY**  
Contributor

**H**I, EVERYONE. Welcome to the new term and to 2018. It is always good to begin by looking at the specific objectives. These objectives indicate to you what the examiners expect you to be able to do in the final examination. The specific or learning objectives for this section are as follows:

1. Describe the role of commercial banks.
2. Outline the services offered by commercial banks.
3. List the functions of the central bank.
4. Describe the relationship between the central bank and the commercial banks.
5. Outline ways used by individuals to manage personal income.
6. Identify sources of short-term and long-term financing.
7. Differentiate between saving and investment.
8. Explain the role of the stock market.

The financial sector is made up of borrowers and lenders. Included among the lenders are a number of financial institutions - commercial banks, building societies, credit unions, savings banks and development banks.

A commercial bank is a financial institution which accepts deposits from customers, safeguards them until required, and lends money to customers at interest. Examples include National Commercial Bank and Scotiabank.

## FUNCTIONS OF THE COMMERCIAL BANK

The following functions are among those of commercial banks:

1. Accept deposits for safe keeping. This enables customers to keep their money in financial institutions where it is safe, rather than spend it immediately. Customers get interest on their deposits, though not usually on current or chequing accounts.
2. Offer loans or advances to customers – Customers that qualify for loans may be given



these advances in three main ways: (1) by means of a loan account, (2) by means of an overdraft, and (3) by discounting bills of exchange.

3. Make the use of cheques possible – Commercial banks allow cheques to be used as a means of payment. They issue and accept them and are involved in the clearing of cheques.
4. Allow standing orders for customers who require it – Standing orders allow customers to make regular payments of fixed amounts of money.
5. Enable traveller's cheques – They sell traveller's cheques and accept traveller's cheques.
6. Trade foreign currencies – They buy and sell major foreign currencies.
7. Facilitate documentary credit – They help businessmen to open letters of credit (documentary credit).
8. Receive and collect dividends – They do this on behalf of their customers who have invested in shares, etc.
9. Act as brokers – In the buying and selling of stocks

and shares, they act as agents for their customers.

10. Give financial advice – They give advice, especially to entrepreneurs. Financial advice is usually free.
11. Allow banker's reference – If a customer wants to buy goods/services on credit, he may use the bank as a reference.
12. Act as executors – They act as executors or trustees to wills.
13. Provide safety deposit boxes – They keep valuables safe for customers in safety deposit boxes. They have different size boxes for which they charge different fees.
14. Offer night safe deposit boxes – These enable shop owners and other businessmen to keep their money in the bank after closing hours, instead of taking the risk of carrying the money home.
15. Issue credit and debit cards – These cards facilitate payments for goods and services and alleviate the need for carrying around large amounts of cash for transactional purposes. Where the credit card is concerned, it encourages the notion of 'buy now and pay later'

– The seller collects payment from the bank rather than the customer.

16. Provide automated teller machines (ATMs) – These machines make banking convenient, especially outside of banking hours.
17. Make drive-in tellers available – This is another means of convenient banking for customers.

## HOW COMMERCIAL BANKS MAKE PROFITS

They make profits in three main ways:

- (1) Mainly from the difference between interests paid to customers on their deposits and the interest on loans given to customers.
- (2) From the fees that are charged for various services, e.g., safety deposit boxes and credit and debit card services.
- (3) They invest a portion of the deposits, keeping just enough to service everyday needs for cash. They gain interest on their investments.

Now try this question.

- (a) Name TWO elements of the financial sector. **(2 marks)**
  - (b) Define the term 'commercial bank'. **(2 marks)**
  - (c) Give TWO examples of commercial banks from your own country. **(2 marks)**
  - (d) Outline FOUR functions of a commercial bank. **(8 marks)**
  - (e) Discuss THREE ways in which commercial banks make profits. **(6 marks)**
- Total marks: 20**

Next week, we will look at the functions of the central bank and also consider the relationship between the commercial bank and the central bank. Enjoy the rest of the week.

*Yvonne Harvey is an independent contributor. Send questions and comments to [kerry-ann.hepburn@gleanerjm.com](mailto:kerry-ann.hepburn@gleanerjm.com)*

# Depreciation – Part 1

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WELCOME BACK from the Christmas break. I hope it was a peaceful one for all and you were all able to spread the joy of the season.

This week, we will be paying keen attention to fixed assets with an introduction to depreciation. Below are some useful concepts:

**FIXED ASSETS**

- 1. A fixed asset is a tangible asset that is relatively permanent and is used to enhance the operation of a business; these include land/property, motor vehicles, equipment and machinery.
- 2. A fixed asset is not bought for resale. However, when it becomes outdated or overused, then it is put up for sale.

**DEPRECIATION AND SCRAP VALUE**

- a. The useful life of the fixed asset may be long or tedious, making its life limited.
- b. As the fixed asset loses its productive worth, it will only have a salvage value/scrap value.
- c. The cost of a fixed asset over its scrap value is distributed over the estimated lifetime of the asset. The period of spreading the cost over which period it received benefit is called depreciation.

**PROVISION FOR DEPRECIATION**

- i. Provision for depreciation is an expense. It transfers the cost of the given asset consumed yearly in the profit & loss account.
- ii. Some main causes of depreciation are physical deterioration, economic factors, time and depletion. Land is not depreciated.

**METHODS OF DEPRECIATION**

The three methods of depreciation are:

Methods	Formulae
Straight line Method	$\frac{\text{Cost less scrap value}}{\text{Life span of the asset}}$
OR	OR
Fixed installment	$\text{Cost less scrap value} \times \% \text{ rate of depreciation}$
Reducing Balance	<ul style="list-style-type: none"><li>a. This means that depreciation is charged on the book value each year</li><li>b. It gets lower each year of use</li></ul>
OR	
Diminishing Balance	

Revaluation Method:	$\begin{aligned} &\text{Value at beginning of year} \\ &+ \text{additional} \\ &\text{Less value at end of year} \end{aligned}$
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**PRINCIPLES OF CHARGING DEPRECIATION**

Yearly Principle	Full year's depreciation must be charged in the first year of purchase and no depreciation should be charged in the year of sale.
Monthly Principle	Depreciation is charged for the months asset is used in year of purchase and for the number of months asset is used in the year of sale.

**RECORDING OF PROVISION FOR DEPRECIATION**

Debit (Dr) entry in the profit & loss.  
Credit (Cr) provision for depreciation.

- a. The current year's depreciation is transferred to profit & loss A/c
- b. The previous and current year are deducted from the asset balance in the balance sheet.

**DISPOSAL ENTRIES**

1. To transfer the cost of the asset to Disposal A/c:			
Debit (Dr.) Disposal A/c Credit (Cr.) Fixed Asset A/c			
2. To transfer the total depreciation charge on the asset to Asset Disposal A/c:			
Debit (Dr.) Provision for Depreciation Credit (Cr.) Asset disposal A/c			
3. To post cash received from sale of asset to Asset Disposal A/c:			
Debit (Dr.) Cash Credit (Cr.) Asset Disposal A/c			
4a. When the book value is more than a sale, there is a loss:			
Debit (Dr.) Profit and Loss A/c Credit (cr.) Asset Disposal A/c			
N.B. Calculation of Loss: Cost – Depreciation to date = Book Value – Sale Price			
4b. When Book Value is less than Selling Price, there is a profit on disposal.			
To record profit on disposal of asset:			
Debit (Dr.) Disposal A/c Credit (Cr.) Profit & Loss A/c			
N.B. Calculation of Profit: Cost – Depreciation to date = Book Value – Sale Price.			
Asset Disposal A/c			
1.	Asset at Cost	2.	Pro. for Depreciation
4b.	Profit & Loss (Profit)	3.	Cash
		4a.	Profit & Loss (Loss)

When determining depreciation expenses for a fixed asset, the following information is needed:

**1. COST**

This is the total purchase price of the asset, which includes its initial cost, transportation, sales tax and all other expenses related to make it ready to be used.

**2. ESTIMATED USEFUL LIFE**

This is, simply put, the projected life in which the asset is expected to function. This may be expressed in number of years, miles or any other appropriate measures.

**3. RESIDUAL VALUE OR SCRAP VALUE OR SALVAGE VALUE**

This is the estimated value of the asset after it is fully depreciated.

The business may not expect the asset to have any value at the end of the depreciation period.

Example 1:

	\$	\$
Equipment	30000	
Less: Accumulated Depreciation	12000	
Book Value of Equipment		18000

The only exception in principle to the above consideration is land, since land does not depreciate but is carried on the books as a permanent value.

Example 2:

Straight-Line Method:

Question:	Working:
Cost of equipment \$51000 Scrap Value \$6000 estimated life 5 years	$\frac{\$51000 - 6000}{5} = \$9000 \text{ (per year)}$ 5 (years)

Schedule to show the Equipment's Cost, Depreciation Expense and Book Value for the 5 years:

Date	Cost	Accumulated Depreciation	Book Value
	\$	\$	\$
2010	51000	9000	42000
2011	51000	18000	33000
2012	51000	27000	24000
2013	51000	36000	15000
2014	51000	45000	6000

This is where we will end for this week. Join us next week as we continue to complete the syllabus. Grasp the concepts and retain them; you will need them as you progress to excellence. See you next week.

Roxanne Wright teaches at Immaculate Academy. Send questions and comments to [kerry-ann.hepburn@gleanerjm.com](mailto:kerry-ann.hepburn@gleanerjm.com)



# Living organisms – Cont'd

**MONACIA WILLIAMS**  
Contributor

*"Soil erosion is second only to population growth as the biggest environmental problem the world faces. Yet, the problem, which is growing even more critical, is being ignored because, who gets excited about dirt?"*

*- David Pimentel*

**H**ELLO THERE. I hope it is not too late to wish you a Happy New Year. How have you been so far? Have you begun your ecological study? I hope you have not just been sitting there waiting for the teacher to begin the topic! Try it on your own; that is what science is all about!

This week, as we continue our study of living organisms in the environment; we will take a look at soils. As you should remember, this is one of the abiotic/physical factors of the environment. We will be looking at its structure and its impact on the lives of living organisms.

## WHAT ARE SOILS?

Soil is an abiotic factor of the environment.

Soils are complex mixtures of different-sized rock particles, humus, air, water and dissolved minerals, and millions of organisms, most of which are microscopic. Those of you who do geography will learn the structure of soil in more detail. In our study, we will be looking at those features that impact on living organisms; hence, we will be concentrating on the layer of soil that is known as the topsoil.

Remember that our focus will be on the topsoil. Topsoil has six main components: mineral particles, humus, water, nutrient ions, air and living organisms. It can be classified into different types based on the size of the particles which make it up. The two main types are sand and clay. However, there is a third type of soil which is formed from a mixture of the previous two; this type is called loam. We will look at the properties of loam after we have looked at the properties of sand and clay.

## CLAY SOIL



The University of Technology (UTech) launched its inaugural Mathematics Quiz Competition last month, with more than 200 students from 25 high schools across the island participating. Under the theme 'Making Mathematics a Way of Life', UTech sets out to increase interest and critical-thinking skills in mathematics. At the end of the contest, Glenmuir High School took first place. Here the winning team of (from second left) Phillip Lloyd, Javier Bryan, Oneika Anderson (teacher), Jabari Graves and Eric Dixon shares lens with Joseph Montague, senior marketing officer, National Commercial Bank (NCB). The NCB Foundation donated \$150,000 towards the initiative and also provided tokens for the first- and second-place teams. Additionally, all finalists received gift bags, courtesy of the Foundation, while members of the winning team received \$15,000 gift certificates.

High water retention, low drainage, less space for air. Spaces between particles are small, so soil is poorly aerated. Poor drainage – water drains slowly, soils can become waterlogged. Good retention of water because water is held in the small spaces between particles by capillarity. Dry soil, animals can dry out, plants will need special adaptations to survive. Many minerals are present because they are bound to the soil particles and slow drainage prevents leaching. Difficult to cultivate since the particles stick together when wet and become compacted when the soil is dry.

## SANDY SOIL

More air spaces, low water retention, leaching of minerals. Anaerobic conditions, organisms die, many denitrifying bacteria. Spaces between particles are large so soil is usually well aerated. Good drainage since water drains through the large spaces quickly. Poor retention of water because water is not held as the spaces between are too large. Animals have difficulty finding food. Few minerals present as they are quickly leached as the water drains through.

Plants with deficiency diseases. Mineral salts held in spaces and not released for plant growth; difficult for plants to grow. Easy to cultivate since the particles do not stick together. Easily eroded if plant roots and creeping stems do not stabilise it.

## PROPERTIES OF LOAM

- Consists of 20% clay, 40% sand and 40% silt.
- The clay portion holds minerals (nutrients) and water.
- The sand portion ensures good drainage and provides large spaces for aeration.
- The silt helps to hold the sand and clay together.
- There is also a certain amount of humus and lime; the presence of these will cause some changes in the percentages of the sand, clay and silt.

Both sand and clay can be improved by man to make them more suited for plant growth.

## IMPROVING SANDY SOIL

- Add clay

- Add humus
- Add artificial fertilisers
- Add plants

See if you can find a reason or reasons why doing the above will improve the quality of the soil!

## IMPROVING CLAY SOILS

- Add sand
- Add lime
- Dig the soil
- Add compost or humus
- Add artificial fertilisers

Again, see if you can determine the reasons for doing the above!

See you next week, when we will look at the components of soil.

*Monacia Williams is an independent contributor. Send questions and comments to [kerry-ann.hepburn@gleanerjm.com](mailto:kerry-ann.hepburn@gleanerjm.com)*

# Impact of metals on living systems and the environment

FRANCINE TAYLOR-CAMPBELL  
Contributor

**W**ELCOME BACK, students. It is time for serious work again.

## 1. WHAT ARE THE CONDITIONS NECESSARY FOR THE CORROSION OF METALS?

Corrosion refers to the deterioration of a metal due to its reaction with oxygen and moisture in the air, as well as chemicals in the environment. During this process, the metal is oxidized to the metal oxide which leads to changes in the appearance and strength of the metal. Corrosion leads to damage to metallic objects and structures such as buildings.

The corrosion of iron is called rust, which is hydrated iron (III) oxide ( $\text{Fe}_2\text{O}_3 \cdot x\text{H}_2\text{O}$ ).

$4\text{Fe (s)} + 3\text{O}_2\text{ (g)}$  (in the presence of moisture)  $2\text{Fe}_2\text{O}_3 \cdot x\text{H}_2\text{O (s)}$

The rusting of iron and steel damages the metal. The rust that is formed easily flakes off and exposes fresh iron to the air, resulting in further corrosion.

Acid rain and salts speed up the corrosion process.

Aluminium corrodes in air to form a layer of aluminium oxide which forms a protective layer on the surface of the metal, preventing further corrosion.

$4\text{Al (s)} + 3\text{O}_2\text{ (g)} \rightarrow 2\text{Al}_2\text{O}_3\text{ (s)}$

The more reactive a metal is, the more likely it will corrode. Therefore, unreactive metals such as gold and platinum do not corrode.

## 2. HOW CAN CORROSION BE PREVENTED?

Ways of preventing rusting include any method that prevents its contact with water or air, such as painting, coating with oil or grease, or with a metal.

In galvanizing, iron is coated with zinc, which provides a protective coating of zinc oxide.

In tin coating, the steel cans are coated with a thin layer of tin and covered by plastic to prevent corrosion. Tin reacts more slowly than iron and so protects the metal.

## 3. CITE EXAMPLES OF THE IMPORTANCE OF METALS AND THEIR COMPOUNDS TO LIVING SYSTEMS: METALS ARE USEFUL TO LIVING SYSTEMS (PLANTS AND ANIMALS) AS MINERALS WHICH ENABLE THE PROPER FUNCTIONING OF LIFE PROCESSES.

Magnesium forms an important constituent of chlorophyll in green plants which enables the process of photosynthesis. Lack of magnesium results in the yellowing of leaves. In humans, magnesium enables the proper functioning of enzymes.

Iron forms part of the haemoglobin molecule found in red blood cells necessary for the transport of oxygen around the body. Lack of iron results in anaemia, with symptoms of low energy and tiredness.

Calcium is essential for the formation of healthy teeth and bones. Shortage of calcium leads to rickets in children and osteoporosis in

adults.

Ions of sodium and potassium are needed for the transmission of nerve impulses.

Zinc, copper, manganese and cobalt are examples of trace elements needed by plants and animals for their proper growth and development.

## 4. WHAT ARE THE HARMFUL EFFECTS OF METALS TO LIVING SYSTEMS AND THE ENVIRONMENT?

Heavy metals such as lead and mercury are toxic to living organisms, causing brain damage and death. These metals can accumulate in the environment and concentrate in consumers in the food chain, where they become more toxic.

Lead is present in car exhaust fumes (from the use of leaded fuels), paints and batteries from vehicles. Children exposed to lead compounds usually develop learning disorders as a result of brain damage.

Mercury is introduced into the environment from the disposal of thermometers in health facilities, as well as from the extraction and refining of metals such as gold and silver. Disposal of mercury in waterways leads to

contamination of fish, which is later consumed by humans. Mercury damages the nervous system.

Arsenic is also used in the mining and refining of metals. Exposure to arsenic causes skin damage which can lead to cancer. Internal body organs are also damaged through poisoning.

Cadmium used in nickel-cadmium batteries and also present in burning fuels, cigarette and wastes can lead to damage of kidneys, liver and the respiratory system. Exposure to cadmium increases the incidence of osteoporosis. Other metals such as tin, copper and zinc can affect aquatic animals and are suspected cancer-causing agents.

The disposal of solid waste creates a serious problem, as compounds containing heavy metals can enter water sources and soil, resulting in contamination. As such, batteries, broken thermometers and fluorescent light bulbs should not be placed in regular garbage-collection sites such as landfills. They should not be incinerated either, as harmful gases containing their metal ions can be released. Instead, these items must be collected by waste management companies that specialize in hazardous waste disposal. In some cases, reuse or recycling of the materials will delay their entry into the environment.

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# Map reading and field study

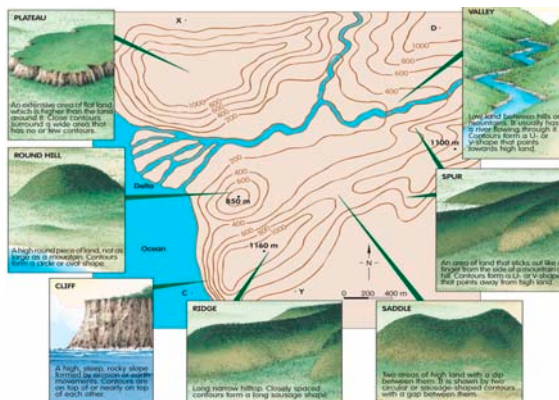
## DESCRIBE LANDFORMS THROUGH THE READING OF CONTOURS.

### FOCUS QUESTIONS:

- What are landforms and contours?
- What are the types of landforms?
- How are contours used to describe landforms?

### CONTOUR LINES REPRESENT HEIGHT ON A MAP

- '0' is sea level, the ocean is always at sea level.
- Contour intervals can be any number, but the value between each must be consistent, e.g., 25,50,75,100.
- The closer together the lines, the steeper the slope or hill will be – for example, if the contour lines are close together on a hill, maybe 2mm apart, that will be a very steep hill.
- There are many different type of landforms that contour lines can represent.
- A simple topographic map can include a spur, cliff, valley and plateau.
- The land features are identified by the way the contour lines come together to create shapes on the map.
- Most important, recognising land features on a map involves identifying the shapes created by the pattern of contours.



### READING CONTOUR LINES

By reading the contour lines an understanding of the shape of the land is obtained.

Land features are identified from the contour lines.

### HOW TO USE CONTOUR LINES TO IDENTIFY LAND FEATURES

- To do this you will need a topographic map.

Read the topographic map using the following steps:

#### STEP 1

Look at the contour lines in the figure above. You will see that sometimes the lines are close together and sometimes the lines are further apart. Identify two areas where this is the case.

#### STEP 2

Using your hand, create the shape of a hill. For every-50 metre increase of the hill slope, move your hand higher and at each step visualise that this is the next contour line on a map.

Try this for some other landform that you are familiar with, such as a valley.

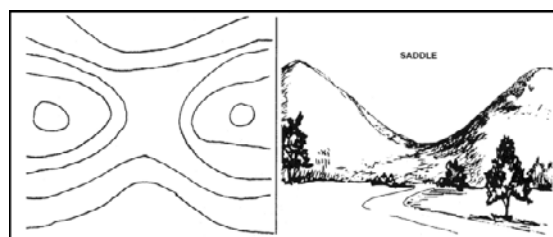
Did you recognise that if the contours are close together, then the shape of the land is steep, and if the contours are further apart, then the land is flatter?

#### STEP 3

Landforms have distinctive shapes with contours, which a geographer recognises on a topographic map as a particular land feature. Use the figure above as a guide to understanding the shapes on maps as land features. Create your own hand models of the shape of each land feature.

The following are the contours and their corresponding landforms.

Take a good look at them. You should be able to identify these landforms on a topographic map.

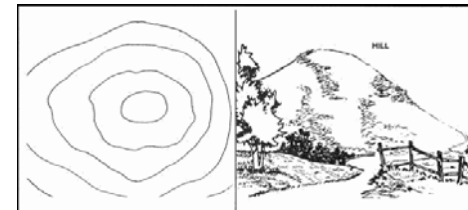
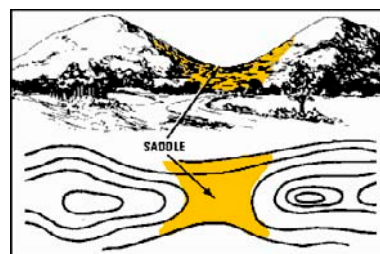


A saddle is a dip or low point between two areas of higher ground.

A saddle is not necessarily the lower ground between two hilltops; it may be simply a dip or break along a level ridge crest.

If you are in a saddle, there is high ground in two opposite

directions and lower ground in the other two directions. A saddle is normally represented as an hourglass.



A hill is an area of high ground. From a hilltop, the ground slopes down in all directions.

A hill is shown on a map by contour lines forming concentric circles.

The inside of the smallest closed circle is the hilltop.

A ridge is a landform feature characterised by a continuous elevation crest with sloping sides.

Ridges are represented by 'U' or 'V'-shaped contour lines with their closed end pointing towards lower elevation.

U-shaped contours indicate broader ridges, while V-shaped contours represent narrower and sharper ridge lines. The closed end of the contour line points away from high ground

A spur is a lateral ridge projecting from the mountain or the main ridge crest. A spur is usually formed by the two roughly parallel streams eroding gullies (draws) down the face of the mountain from the ridge line.

A valley is an elongated depression in the landscape that is formed by the action of water (V-shaped) or carved out by glaciers (U-shaped).

Valley bottoms are represented by 'U' or 'V'-shaped contour lines with their closed end pointing towards higher elevation.

■ A valley begins with high ground on three sides, and usually has a course of running water through it.

■ If standing in a valley, three directions offer high ground, while the fourth direction offers low ground.

■ To determine the direction water is flowing, look at the contour lines.

■ The closed end of the contour line (U or V) always points upstream or towards high ground.

A cliff is a vertical or near-vertical slope.

A cliff may be shown on a map by contour lines being close together, touching, or by a ticked 'carrying' contour line. The ticks always point toward lower ground.

In the next lesson, we will be looking at describing drainage, vegetation, land use, settlement and communications on a topographic map.

Send questions and comments to [kerry-ann.hepburn@gleanerjm.com](mailto:kerry-ann.hepburn@gleanerjm.com)

# Religious and economic institutions

**MAUREEN CAMPBELL**  
Contributor

*"Anyone who thinks sitting in church can make you a Christian must also think that sitting in a garage can make you a car."*

— Garrison Keillor

## OBJECTIVE

Evaluate the functions of institutions in society.

Students, I take this opportunity to welcome you to our first lesson for the new year. I trust you got some rest and you are ready to go again.

Religion is a social institution that answers questions and explains the seemingly inexplicable. Religion provides explanations for why things happen and demystifies the ideas of birth and death. Religion may be further seen as beliefs concerning the cause, purpose and nature of the universe, and is the creation of a superhuman force. It involves devotional and ritual observances, and contains a moral code governing the conduct of human interaction/behaviour. It is, therefore, a unified system of beliefs and practices concerned with sacred things. Religions based on the belief in a single deity are monotheistic. Those that encompass many deities are polytheistic.

## WORLD RELIGIONS

Most of the world subscribes to one of the following religions:

■ **Christianity:** This is the most widespread world religion. It is based on the belief that Jesus Christ is the son of God and the redeemer of mankind. There are many different Christian denominations.

■ **Islam:** Followers of Islam are called Muslims. Muslims believe that the true word of God was revealed to the prophet Muhammad.

■ **Judaism:** Judaism predates Christianity and is built on the belief that the Jews are the 'chosen people' of God.

■ **Hinduism:** Hinduism is the oldest major world religion; it is dominant in India. They believe in the principle of karma, which is the wisdom or health of one's eternal soul.



■ **Buddhism:** Buddhists follow the teachings of Siddhartha Gautama, a spiritual teacher.

## CHARACTERISTICS OF RELIGION

Beliefs: ideas, based upon faith, that people consider true.

Sacred: That which has supernatural qualities.

Profane: Relating or devoted to that which is not sacred or biblical; secular

Rituals: Routines that reinforce the faith.

Moral communities: People who share a religious faith.

Personal experience: That which grants meaning to life.

## THE FUNCTIONS OF RELIGION

1. Religion influences the economy: It is believed that because of the distinct religious principles present in Christianity, capitalism grew in Protestantism.

2. Religion influences political system: Even in modern times in many countries of the world, religion also directly and indirectly influences political activities. Even today, political leaders take oaths in the name of God.

3. Religion strengthens self-confidence: There are certain beliefs found in various religions that

give strength to individual and promote self-confidence.

4. Religion gives formal approval to existing social arrangements: Religion gives authority to social norms and customs.

5. Religion encourages a sense of unity: According to Emile Durkheim, religion is the glue that holds society together.

6. Religion provides a sense of understanding: It provides meaning to life. people mark important events in life – birth, sexual maturity, marriage, death with religious ceremonies – and explain these ceremonies in religious terms.

7. Religion promotes a sense of belonging: By providing group identity, it promotes powerful emotions and commitments.

## ACTIVITIES

■ When do people turn to religion in your country? Why?

■ Suggest THREE roles of religion in your country. Explain THREE ways in which these roles are carried out in the society.

## ECONOMIC INSTITUTIONS

*"People of the same trade seldom meet*

*together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices."*

— Adam Smith, *The Wealth of Nations*

Economic systems involve the production and distribution of goods and services. It is the networks of commercial organisations, such as manufacturers, producers, wholesalers, retailers and buyers, who generate, distribute and purchase goods and services.

The term 'economic institutions' refers to two main things:

1. Specific agencies or foundations, both government and private, devoted to collecting or studying economic data, or commissioned with the job of supplying a good or service that is important to the economy of a country. The Internal Revenue Department is a good example of an economic institution.

2. Well-established arrangements and structures that are part of the culture or society, such as the markets and the banking system, are examples of economic institutions.

## TRADE UNION

Formed by workers from related fields, trade unions are organisations which work for the common interest of their members. They help workers in issues like fairness of pay, good working environment, hours of work and benefits. They represent a cluster of workers and provide a link between the management and workers.

The purpose of these unions is to look into the grievances of wagers and present a collective voice in front of the management. Hence, they act as the medium of communication between the workers and management.

Regulation of relations, settlement of grievances, raising new demands on behalf of workers, collective bargaining and negotiations are the other key functions that these trade unions perform.

**CONTINUED ON PAGE 24**



# Completing the research project

**DEBBION HYMAN**  
Contributor

IN THIS week's lesson, we focus on writing the research paper. By now, you would have started working on your paper, and the aim of this lesson is to provide you with guidelines on preparing an excellent research paper.

■ The School Based Assessment is one research project/paper. This contributes 21% of the final grade for the external examination. The project will be marked out of 35.

■ The project should be between 1,200 and 1,500 words, excluding bibliography, appropriate quotations, charts, graphs, references, appendices and so on.

■ Use Times New Roman for your font style, size 12, double-spaced.

■ Your first page should be your cover page and should have the following information. (See below).

## SCHOOL BASED ASSESSMENT

Caribbean History

Name:

Subject:

School:

Candidate Number:

Centre Number:

Territory:

Teacher:

Year:

■ Next is your Table of Contents

■ Then the next page should have the following information – Theme, Research Question/Statement of the Problem and Rationale.

## FOR EXAMPLE:

**Theme:** Metropolitan Movements Towards Emancipation

**Topic:** The Abolition of Slavery

## STATEMENT OF THE PROBLEM

The statement is usually time-bound, geographically focused and is testing a hypothesis/view.



KENYONHEMANS/PHOTOGRAPHER

St Mary's High Schools' Challenge Quiz team.

## FOR EXAMPLE:

'How accurate is the view that it was primarily economic motives that led to the abolition of chattel slavery in the British Caribbean in 1834?'

## RATIONALE

The rationale sets the historical context of your paper and outlines the reason(s) you are undertaking your research.

## FOR EXAMPLE:

The system of chattel slavery resulted in the enslaved Africans experiencing immense horrors on the plantation. The system would end in 1834 primarily because of economic motives rather than social and political factors. The aim of this study is to provide a critical examination of the subject abolition of slavery and the major factors that would have influence it. By doing such a study, the researcher is providing an added wealth of knowledge on an area of study that has been important to Caribbean history students.

## THE STUDY SEEKS TO ANSWER THE FOLLOWING QUESTIONS

a) What economic factors played a crucial role in the abolition of slavery?

b) How influential were the social and economic factors in ending the system of slavery?

■ Include on the next page the following information – Data Collection, Presentation of Data and Introduction.

## DATA COLLECTION

This section outlines the primary and secondary sources that you will be using and the benefits of such sources.

## FOR EXAMPLE:

The study requires the extensive use of primary and secondary sources. The use of primary sources is critical, as it provides first-hand information on the economic challenges facing the British Caribbean sugar industry. The secondary sources will be used to supplement the information found in the primary sources, as well as for a richer understanding of the subject. The primary and secondary source data will be accessed from public libraries.

## PRESENTATION OF DATA

This section should outline the various forms in which you will be presenting the information that you gathered.

## FOR EXAMPLE:

The presentation of data will take the form of graphs, diary extracts, and photograph illustrations.

## INTRODUCTION

The introduction sets the historical context of the paper and provides a summary of what you will be discussing. It should also have your aim of study/thesis statement – a sentence that provides the central argument of your paper.

## FOR EXAMPLE:

The system of chattel slavery ended on 1 August 1834 in the British Caribbean. Its end would signal emancipation of the enslaved persons from estate labour. The anti-slavery movement in Europe was a long, drawn-out process that developed as a broad-based alliance of religious sects, politicians, philosophers, intellectuals and industrialists. The question that arises in any such discussion, however, is what factor(s) played a role in the end of such a system. Each European government was pushed to emancipation of the slaves by a combination of political, economic, moral and cultural forces. The aim of this study is to demonstrate that it was primarily economic factors that led to the abolition of slavery.

Your focus will now shift to the body of the paper, your bibliography and appendices.

■ The body of your paper is written as one continuous document with subheadings. Ensure that at the end of your paper you have a conclusion.

The bibliography is very important and your research paper must not be submitted without one

Your bibliography should be listed in alphabetical order at the end of your paper. Please note that your bibliography is a list of sources which you used, and also quoted. Ensure that you also cite your online sources. Use a free grammar checker such as Grammarly to eliminate grammatical errors and enhances your writing. The site also has a plagiarism checker to ensure your proper citation of sources.

■ Lastly, your appendix.

■ Each appendix should be on a separate page. It should also have a title and identify the source from which the information was taken.

*Debbion Hyman is an independent contributor Send questions and comments to [kerry-ann.hepburn@gleanerjm.com](mailto:kerry-ann.hepburn@gleanerjm.com)*

# Developing summary skills

**H**appy New Year, students! It's 2018. I really hope you enjoyed your holidays and you are ready to navigate the months ahead. In the previous lesson, I gave some practice activities and promised that I would share the answers with you. I have outlined the answers below.

In this lesson, we will focus on equivalent sentences and eliminating redundancies. Learning about equivalent sentences and redundancies is especially important in developing your summary writing skills. I will explore each topic below.

## EQUIVALENT SENTENCES

A key aspect of summarising is the ability to paraphrase, and identifying equivalent sentences can help in that regard. An equivalent sentence is that one sentence that is similar in meaning to the original. It requires you to be able to decode the nuances of words so you can distinguish similarities and differences.

Consider the examples below.

### EXAMPLE 1

You can please yourself which method you follow.

- If you follow a method, you will be pleased.
- If you please, follow one method.
- You are free to follow any method you please.
- Be pleased that you can follow a method.

**Answer: C** – It states that the person identified as the 'you' has the choice to follow the method that he prefers. 'A' is too far off because it gives the idea that the person will be happy if he/she follows a method. In the original sentence, pleased is used to mean satisfied. B functions as an instruction by telling the person to follow one method.

### EXAMPLE 2

The sports meeting had to be postponed because of torrential rain.

- The postponement of the sports meeting was unavoidable due to overcast conditions.
- The sports meeting had to be cancelled



Students from various high schools across Jamaica participate in productivity-related activities at the productivity booth during the College Day Expo, held in 2017 at Knox Community College in Mandeville. The activities were geared at helping students to understand the importance of paying keen attention to instructions, proper planning and execution to achieve the desired result. Facilitating the activities is communication specialist at the Jamaica Productivity Centre, Sandra Dennis (right).

because of heavy rainfall.

- The sports meeting was a failure because of incessant rainfall.

- The sports meeting had to be put off because it rained incessantly.

**Answer: D** – It is closest in meaning to the original because put off can be used in place of 'postponed' and 'rained incessantly' for 'torrential rain.' 'A' is automatically eliminated because overcast conditions do not mean there is torrential rain. 'B' is unlikely because it uses 'cancelled' which suggests the meeting will never be held. 'C' cannot work because the word 'failure' gives the impression that the meeting was held but was unsuccessful because of the rain. The key parts of the original sentence are 'postponed' and 'torrential rain,' and the equivalent sentence must use similar words and expressions to communicate the original idea.

Now that you see what equivalent sentences entail, I will give you an activity to do. Equivalent sentences usually make up the multiple-choice section of Paper 01, so this is good practice for you.

## ACTIVITY 1

**Instruction:** From the four sentences given, choose the sentence which is nearest in meaning to the original. Be sure to read all four choices before you select your answer.

- The competitors in the long jump event were daunted by the performance of Bill Jones.
  - Bill Jones was the best participant in the long jump event.
  - Since Bill Jones jumped so well, the other competitors in the event were discouraged.
  - The long jump event daunted all the competitors, except Bill Jones.
  - No one expected to do better than Bill Jones in the long jump event.

- James has to give up his pet turtle if he wants to keep fish.
  - If James does not want his pet turtle, he can keep fish.
  - James has to keep fish if he does not want his pet turtle.
  - James will be able to keep fish only if he does not have his pet turtle.

- James keeps fish so that he can give up his pet turtle.

- His books are interesting and provocative.
  - His books tend to make the reader angry.
  - His books are most exciting.
  - His books are concerned with controversial topics.
  - His books are appealing and stimulate discussions.

- After I left the school, I bumped into an old neighbour whom I had not seen since I was a child and I decided to help her with her things.
  - I bumped into an old neighbour when I was in school and I agreed to carry her things.
  - I met an old neighbour after school so that I could help her with her things.
  - I helped an old neighbour that I usually met after school with her things.
  - I agreed to help an old neighbour with her things when I saw her after school.

- So engrossed was he in his task, he did not hear his sister enter the room.
  - He did not hear his sister enter the room because of the job he was doing.
  - His sister's entry did not attract attention because he was enjoying what he was doing.
  - He was so preoccupied with what he was doing that he was unaware of his sister's entry.
  - His task was so difficult that he did not observe his sister's entry.

- A fight between supporters of the two teams erupted after the rugby match when it ended in a draw.
  - A draw in the rugby match led to a fight between the supporters of the two teams.
  - The supporters of the rugby teams began fighting when they knew that the match would end in a draw.
  - The rugby match caused supporters of the two teams to fight but, it ended in a draw.
  - There was a draw between the supporters of the two teams after they fought at the rugby match.

**CONTINUED ON PAGE 24**



# ‘To Kill a Mockingbird’

**BERYL CLARKE**  
Contributor

**Y**OU HAVE met Boo Radley through the antics of Jem, Dill and Scout. You may have formed, based on the children's imagination and neighbourhood gossip, a picture of him in your mind. I don't mean just a physical picture. Boo Radley, and I know you'll agree with me, is a very unfortunate individual. It is through the way that he is treated by his fellow whites that we see yet another side of Maycombian whites. This is their pride as displayed by the members of his family – which comes across as unnatural, overwhelming and destructive. When, like many hot-blooded young men, Boo gets into trouble, his father turns him into a recluse, isolating him and making him into a virtual prisoner. It is tragic how the family represses and squashes and changes his life for ever. Of course, the wider society does not ignore or forget him, but makes him the centre of highly imaginative and cruel tales.

Fortunately, in his kind response to the children's overtures, even though their actions are not kind, we have the opportunity to form our own opinions of him. He, it is, who leaves gifts in the knothole for them, mends Jem's pants that are torn when they along with Dill venture into the Radley yard, and eventually saves them from Bob Ewell's wrath. We end up seeing him like Scout does – a mockingbird who does nothing but sing its (his) heart out. Can you understand this view of Arthur (Boo) Radley? Please take time to consider his lamentable circumstances, his delicate relationship with the children, his action in saving them from Ewell and inadvertently removing a dangerous man from society. What he does is break out of the shell that has crippled his life to rescue the innocent Jem and Scout. It could not have been easy for him! Harper Lee uses this unlikely 'innocent' Boo to remove evil and cleanse Maycomb of this particular disgrace.

Here is a situation around which you can organise a debate or a good discussion as you form your own opinions, a skill in which, as students of literature, you must be proficient. A likely moot or topic is: 'Be it resolved that Heck Tate's decision not to publicise Radley's role in Ewell's death is justified'.

Have you ever thought that there may be some significance to the name Boo? I wonder if we are to read into it that Maycomb disapproved of and was contemptuous of the character who carries that name. Then, too, the word is similarly associated with timidity, a trait which Boo's confinement to his yard may have developed.

It is our duty to examine all the characters in **To Kill a**



KENYONHEMANS/PHOTOGRAPHER

The members of the DeCarteret team along with their coach. From left are Kadisha Mitchell (capt), Krisan Ennis, Jamilla Morgan and Zeneisha Smith.

**Mockingbird** if we are to have a complete and successful understanding of it. So now, let us consider the roles carried out by the women. We are already very familiar with Scout, the narrator. We have already recognised that she is intelligent, a loving and protective daughter and sister, honest and innocent, fun-loving and wise. We know how she brings laughter and brightness to the story. We have also met Mrs Dubose, as the author uses her to show a side of Atticus and to teach the lessons of forgiveness and courage to Scout and Jem. So, at this juncture, we will take into account the presence of Miss Maudie Atkinson and Aunt Alexandra.

I bet you have the same opinion of Miss Maudie as I have. She is a delightful character who is comfortable in her own skin. She can wear her coveralls as she works in her garden and feel alright, or she can put on a pretty dress for a meeting and be as relaxed. Although a part of the white group in Maycomb, she does not exhibit any prejudice. She is supportive of Atticus in his effort to ensure that Tom gets good advocacy in the court and in the way he brings up his children. Scout likes Miss Maudie because she is a tolerant person with a wonderful sense of humour who allows

the children to have their freedom within set boundaries and does not criticise or try to change them. She knew how to correct them without hurting their feelings.

Aunt Alexandra is very different from Miss Maudie. She is set in her belief that she belongs to a superior race and class. She seems stiff in belief, habits, and even dress. She is critical of her brother Atticus in more ways than one. She objects, among other things, to the way he is rearing his children, that he takes on the defence of Tom Robinson and of Calpurnia's place in the Finch home. This latter has aroused Atticus to reprimand her. Aunt Alexandra has none of the tolerance of her brother or Miss Maudie. The writer uses her too to teach Scout how to live with those who 'rubbed her the wrong way'.

When we return to this story, we will focus on Mayella and discuss the themes. Until next week, remember to 'make hay while the sun shines'. God bless!

*Beryl Clarke is an independent contributor. Send questions and comments to [kerry-ann.hepburn@gleanerjm.com](mailto:kerry-ann.hepburn@gleanerjm.com)*

# System and application software

**NATALEE A. JOHNSON**  
Contributor

**G**OOD DAY, students. Since this is or first lesson for 2018, let me wish you a Happy New Year. This is lesson 13 in our series of lessons. In this week's lesson, I will be looking at system and application software. At the end of this lesson, you will be able to define the terms software and application software, and differentiate between the four types of application software.

The term 'software' refers to the computer programs used in a computer system that tells the computer hardware how to work (you had learnt this from our first lesson). Software can be divided into two main categories: application and system software.

Application programs are written to solve everyday problems for end users such as you. These include:

- Programs used for businesses, such as payroll programs, accounting programs, administrative purposes, etc.
- Programs used for information, such as educational programs, library control programs, etc.
- Programs used for entertainment purposes, such as games, painting, and media player.

Application software falls into the following categories:

- General-purpose
- Custom-written
- Customisation of general purpose
- Specialised software packages
- Integrated software

## GENERAL-PURPOSE APPLICATION SOFTWARE

General-purpose application software is used by a large number of people in a variety of jobs and personal situations. The five main types of general-purpose application software are:

- Word processing
- Spreadsheet
- Database management
- Communication
- Graphics/presentation

## ADVANTAGES OF USING GENERAL-PURPOSE SOFTWARE

- You can install it yourself by following the easy instruction in the installation manual that comes with the software.
- It is cheaper than employing a programmer to write the software for you.
- It has easy updating and revising; each new version can be had at a reduced price if the owner can show proof of purchase of a previous version.
- Most users may already be familiar with previous versions of the software, so no intensive training programme is required.
- Several persons use the software, therefore, help is easy to find.

## DISADVANTAGES OF GENERAL-PURPOSE SOFTWARE

- The package may be poorly documented.
- The package may have hidden problems.
- The package may not fit the user's need exactly.
- The package may not be user-friendly.

## CUSTOM-WRITTEN SOFTWARE

If you need a new outfit, you can buy the fabric and take it to a tailor, allow the tailor to take your measurement and then make an outfit that fits you. Custom-written software is software that has been designed or created by a programmer to meet the unique need of a user or organisation. For example, you could hire a system analyst to look at the accounting principles employed by your company and then set a team of programmers to write a program to meet the requirements. This program would be custom-written software.

## ADVANTAGES OF CUSTOM-WRITTEN SOFTWARE

- The software meets the need of the user specifically.
- The software can grow with the company.
- Business owners can relieve the stress placed on overburdened employees and save money by not hiring additional staff.

## DISADVANTAGES OF CUSTOM-WRITTEN SOFTWARE

- Expectations can change midstream when developing custom-written software, making a realistic budget difficult to project. As a result, businesses often run out of money before the

project is completed.

- An experienced software team is needed. Acquiring the right team can be costly.

- If the people who are trained to use the program resign, then it will be some time before new persons are trained, slowing down the business functions.

## CUSTOMISATION OF GENERAL-PURPOSE SOFTWARE PACKAGES

Imagine buying an outfit in a department store that you like but is not exactly your fit. What do you do? Find a tailor or fashion designer who can adjust it to your size. Similarly, if you find general-purpose software in a software house that you like, but it needs some adjustment to meet your specific need, you can get a programmer to modify the program to meet your specific need.

A customised, general-purpose software package is a generalised software package that has been tailored to meet a user or firm's specific need.

- Areas of the software that can be customised include:
  - Screen colour
  - Page size and arrangement on the desktop
  - Navigation to available menus

## SPECIALISED SOFTWARE PACKAGES

Specialised software packages are written for a specific discipline. An example of such packages is expert systems. An expert system is a type of a computer application program that makes decisions or solves problems in particular fields, such as banking or architecture, by using knowledge and analytical rules defined by experts in the field. For example, a doctor could employ an expert system that asks a patient a series of questions and makes a diagnosis. This software falls into two main categories:

- Business application programs, which are programs that perform the information processing tasks of important business functions or industry requirements.
- Scientific application programs, which are programs that perform information-processing tasks for the natural, physical, social and behavioural sciences.

## ADVANTAGES OF SPECIALISED SOFTWARE

- Tasks or processes are carried out more accurately and precisely.
- Mistakes or errors are minimised or easily removed.
- Scientific simulations can be carried out.

## DISADVANTAGES OF SPECIALISED SOFTWARE

- It is expensive to purchase.
- Software is limited to a particular discipline or area of study.

## INTEGRATED SOFTWARE

Integrated software is the term for a program that includes all the major types of application (for example, word processing, spreadsheet and database) and brings them together into a single software package. Microsoft Office Works is an example of integrated software.

## ADVANTAGES OF INTEGRATED SOFTWARE

- You can get value for your money (all in one package).
- You have to learn how to use only one package since the user interface is the same for choosing commands.
- Data can be easily transferred from one integrated application to another, using cut, copy and paste.
- It takes up less memory than separate applications.

## DISADVANTAGES OF SPECIALISED SOFTWARE

- Not all of the features of single applications are included. Thus, the integrated software may not be up to the task you want it for.
- Some integrated packages do not include all of the applications that may be required.

We have come to the end of this lesson. See you next week, when we will look at system software and begin to look at operating systems. Remember, if you fail to prepare, you prepare to fail.

*Natalee A. Johnson teaches at Ardenne High School. Send questions and comments to [kerry-ann.hepburn@gleanerjm.com](mailto:kerry-ann.hepburn@gleanerjm.com)*



# Quadratic equations

CLEMENT RADCLIFFE

Contributor

**W**ELCOME BACK, students, and Happy New Year. If you have been following the materials presented in the last three lessons, you should realise by now that the following methods are commonly used to solve quadratic equations. These are:

- Quadratic factors
- Quadratic formula
- Completion of squares

Learning each method is important. It is also critical that you know when to use the different methods. Let us review the materials presented previously with this in mind.

■ Only some quadratic equations can be solved by the factorisation method.

■ Given the equation, you should first attempt the factorisation method, unless otherwise directed.

■ If a specific method is requested, you must obey the instructions or you will be penalised.

■ All quadratic equations with real roots (equations with real numbers as their solutions) can be solved using the formula method or completion of squares methods.

■ Be sure to use the correct formula and be careful in processing the negative signs in using the formula method.

■ If you are asked to solve a quadratic equation correct to two decimal places, then you should use the formula method. Please be sure to practise all three methods.

Please continue to practise solving quadratic equations by attempting the following:

1. Solve the equation:  $t^2 - 8t + 12 = 0$
2. Solve the quadratic equation:  $3x^2 - 5x - 4 = 0$ , giving your answer correct to two decimal places.
3. Solve:  $4x^2 = 8x - 3$
4. Solve the quadratic equation:  $x^2 - 10x = -21$
5. Solve the equation,  $2y^2 - 11y + 15 = 0$
6. Solve the simultaneous equations:  $x + 2y = 4$   $4x + 3y = 1$

Let us solve together the problems given last time.

## EXAMPLE 1

Solve the simultaneous equations

$$y = x^2 - x + 3$$

$$y = 6 - 3x$$

## SOLUTION

Given that  $y = x^2 - x + 3 \dots (1)$

$$y = 6 - 3x \dots (2)$$

Substitute equation (2) into (1)

$$x^2 - x + 3 = 6 - 3x \quad (3)$$

$$x^2 - x + 3 - 6 + 3x = 0$$

$$x^2 + 2x - 3 = 0$$

Solve using factorisation method

Factorise the left-hand side

$$(x - 1)(x + 3) = 0$$

$$x - 1 = 0, x = 1$$

$$\text{Or } x + 3 = 0, x = -3$$

Substituting in equation (2)

$$\text{When } x = 1, y = 6 - 3 \times 1 = 3$$

$$\text{Or when } x = -3, y = 6 - 3 \times -3 = 15$$

Answer:  $x = 1, y = 3$ , Or  $x = -3, y = 15$ .

## EXAMPLE 2

Solve the simultaneous equations:  $x^2 + 9y^2 = 37$

$$x - 2y = -3$$

## SOLUTION

Given  $x^2 + 9y^2 = 37 \dots (1)$

$$x - 2y = -3 \dots (2)$$

Using equation (2)

$$x = 2y - 3 \dots (3)$$

Substitute in equation (1)

$$(2y - 3)^2 + 9y^2 = 37$$

$$4y^2 - 12y + 9 + 9y^2 = 37$$

$$13y^2 - 12y - 28 = 0$$

Solve using factorisation method.

$$(13y + 14)(y - 2) = 0$$

$$13y + 14 = 0, y = -14/13$$

$$\text{OR } y - 2 = 0, y = 2.$$

Substituting values of  $y$  into equation (3)

$$\text{When } y = -14/13, x = 2 \times -14/13 - 3$$

$$x = -28/13 - 3 = -67/13$$

When  $y = 2, x = 2 \times 2 - 3 = 1$ .

Answer:  $x = 1, y = 2$  OR  $x = -67/13, y = -14/13$

Let us now continue with the review of aspects of Functions and Relations.

Points to note (with respect to the Cartesian diagram):

■ DOMAIN refers to  $x$  values

■ RANGE refers to  $y$  values

■ FUNCTION is a relation in which each element in the domain ( $x$  values) is mapped on to one and only one element in the range ( $y$  values).

■ FUNCTION is usually denoted by the symbols 'f' or 'g'. If  $y$  is a function of  $x$ , then the function of  $x$  is denoted as  $f(x)$  or  $g(x)$ . If  $y$  is defined such that  $y = 2x + 3$ , then this is represented as follows:

$$y = f(x) = 5x - 3 \text{ or } f : x \rightarrow 5x - 3$$

The latter means: The function  $f$  such that  $x$  is mapped on to  $5x - 3$ .

The function is represented on the Cartesian diagram by a plot of the equation  $y = 5x - 3$ . All rules related to graphs, and which were indicated previously, must be observed.

## IMAGE OF X

This is the value of  $f(x)$  for a given value of  $x$ .

It is found by either reading the value off the graph or by substituting into the equation.

## EXAMPLE

Given that  $f(x) = 3x + 5$ , calculate  $f(-3)$ . [ $f(-3)$  is the value of  $f(x)$  for which  $x = -3$ ].

$$\text{Since } f(x) = 3x + 5$$

$$f(-2) = 3 \times -3 + 5 = -9 + 5 = -4.$$

$$f(-3) = -7.$$

Note that  $-3$  is substituted for  $x$  in  $f(x)$ .

Now please try the following:

The function  $g$  is defined by  $g : x \rightarrow 2x^2$ , find  $g(3)$ . If your answer is 18, then you are correct.

## COMPOSITE FUNCTION

Given the functions  $f(x)$  and  $g(x)$ , then the composite function  $f \circ g(x)$  is the function obtained by the function  $g(x)$  being initially applied, followed by function  $f(x)$ . In evaluating

the composite function, we determine the function  $g(x)$ , which is then substituted for  $x$  in  $f(x)$ .

## POINTS TO NOTE

■ It is important to note that:

for  $f \circ g(x)$ ,  $g(x)$  replaces  $x$  in  $f(x)$ ,

while for  $g \circ f(x)$ , then  $f(x)$  replaces  $x$  in  $g(x)$ .

■ A common error made by some students is to find the product of  $f(x)$  and  $g(x)$ . Avoid this, please.

This topic is fairly routine, and so all students are encouraged to take full advantage of the marks allotted to this problem. In this regard, please attempt the following:

## EXAMPLE

Given that  $f(x) = 1/2x$  and  $g(x) = x - 2$ , calculate:

- (i)  $g(-2)$  (ii)  $f(-7)$  (iii)  $fg(x)$  (iv)  $gf(4)$ .

## SOLUTION

(i) Given that  $g(x) = x - 2$ , then  $g(-2) = -2 - 2 = -4$ .  $g(-2) = -4$ .

(ii) Given that  $f(x) = 1/2x$ , then  $f(-7) = -7/2$ .  $f(-7) = -7/2$

(iii) From the definition of  $f(x)$  and  $g(x)$ :

$$fg(x) = f(g(x))$$

$$\text{Here } g(x) = x - 2 \text{ replaces } x \text{ in } f(x).$$

$$f(x - 2) = 1/2(x - 2)$$

$$fg(x) = x - 2 / 2$$

(iv) As  $f(x) = 1/2x$

$$f(4) = 4/2 = 2$$

$$gf(4) = g(2)$$

$$\text{As } f(4) = 2$$

$$\text{As } g(x) = x - 2, g(2) = 2 - 2 = 0$$

$$gf(4) = 0.$$

Alternatively,

Given the definition of  $f$  and  $g$ :

$$gf(x) = g \circ f(x) = g(1/2x)$$

$$\text{As } g(x) = x - 2, g(1/2x) = 1/2x - 2$$

$$\text{Simplifying, } 1/2x - 2 = x/2 - 4/2$$

$$gf(x) = x/2 - 4/2$$

$$gf(4) = 4/2 - 4/2 = 0.$$

**CONTINUED ON PAGE 24**

**T**HIS WEEK, we will continue looking at research. We will look more closely at determining the reliability and validity of a source.

This week's lesson is borrowed from <http://cape-commstudies.blogspot.com/>

For a data source to be accurate and credible, a high level of reliability and validity is the aim. Both elements are equal in importance in judging the accuracy and credibility of a source.

### RELIABILITY – CAN THE SOURCE PROVIDE THE DATA?

For a source to be reliable, we must evaluate the ability of the source to provide the information. We are looking at the question 'Is it likely that this source can provide this data?' The major concern is, therefore, authority. To evaluate authority, we can look at several aspects of the data source:

#### 1. AUTHOR

Is the author an expert in the field? What qualifications does he/she have? For example, an article on a website about HIV written by a medical doctor may have more authority than one written by someone without qualification.

#### 2. PROFESSIONAL STANDARDS

Does the author have certain professional standards? The example of a doctor immediately comes to mind. Similarly, academic writers who are published in academic journals or books have to conform to standards and have their work checked by other academics. Journalists mostly operate within a professional approach, especially large international newspapers such as **The New York Times** or **The Guardian** (UK). Authority can mean expertise.

#### 3. PUBLISHER

Is the publisher reputable? Academic publishers need to maintain their reputation for accurate, factual information, so they also have editors to ensure a high standard. Other publishers such as newspapers, magazines, etc, need to avoid legal action for libel (telling lies about someone), so they should also be careful to print the truth.

#### 4. ORGANISATION OR INSTITUTION

If the data is from an organisation, for

# Research – Part 2



A scene from 'Downsizing'.

example, the United Nations, we need to evaluate its reputation and its role or responsibilities. For example, statistics on the economy from the East Caribbean Central Bank would come from a highly reliable source, as the bank uses the statistics to conduct the very important business of issuing banknotes and controlling the money supply in the region.

#### 5. RESEARCH METHOD

Could the research method chosen generate the data necessary? For example, in researching teen pregnancy, would carrying out an interview of an expert generate the data needed, or would questionnaires of teens be a better choice?

### VALIDITY – IS THE DATA TRUE?

A source could have high levels of reliability, for example, academic research published in an academic journal by the leading expert in the field, but the data may have a low level of validity in that it may be out of date. Equally, it may be possible that a source might not be considered highly reliable, for example, an Internet site which does not have the name of the author/organisation which maintains the site, etc,

but the data is still true or valid. In evaluating validity, we need to look at accuracy and bias.

To evaluate accuracy, we need to look at several aspects of the data:

#### 1. CURRENCY

When was the data published or gathered? Could the information be out of date? For example, statistics on rates of HIV infection will need to be up to date to be accurate.

#### 2. RELEVANCE

Does the information relate to the circumstances you are applying it to? For example, will research carried out in the United States apply to the Caribbean?

#### 3. DATA COLLECTION

Was the data collected by reliable methods? Was it accurately recorded?

#### 4. SAMPLE SIZE

Was the sample size large enough for generalisation to be accurate? For example, if a

newspaper article has only interviewed one person in a large crowd, can we assume that all the points of view are represented? Similarly with social research, the sample size is vital to judging whether the data is representative of the population as a whole.

#### 5. REPLICABLE

Do other sources have similar information? Would another similar piece of research have the same result? This is particularly relevant to sources such as the Internet which lack references.

Next week, we will look at data collection methods and some past-paper questions on research.

Check out <http://cape-commstudies.blogspot.com/> for more interesting lessons in the world of communication studies.

Send questions and comments to [kerry-ann.hepburn@gleanerjm.com](mailto:kerry-ann.hepburn@gleanerjm.com)



# GAME & APP REVIEW



Teach your kid how to make apps with an app | A new FIFA season brings good quality and lots of ads

## Swift Playgrounds

Apple's sleek new iPad app teaches kids to code

By Dana Villamagna  
Common Sense Media



Parents need to know that Swift Playgrounds is an iPad-only app that helps kids learn Swift, which is a programming language made by Apple and used to create apps. The puzzles and challenges incorporate cute alien-like characters and a 3D world to teach kids (or adults) to code using Swift. Users work through all the lessons and challenges, which include "every concept and skill" required to write real apps, according to Apple. Note: Swift Playgrounds is not compatible with iPhones or any iPad that does not have the iOS 10.0 update or is not a Mini, Air, or Pro. Read the app's privacy policy to find out about the types of information collected and shared.

### WHAT'S IT ABOUT?



Tap on "Learn to Code 1 Fundamentals of Swift" to download the first lesson on Swift Playgrounds. Then tap "Open" and start the lesson, which includes a video and discussion about the purpose of coding. Follow the on-screen instructions to tap already-written lines of code in the proper order to move the character, Byte, and make him collect a gem. Once complete, tap "Run My Code" to see if it works. If not, you can return to the code and re-do it, or tap on "Hint" to find out more. Tap Next Page to go onto the next coding challenge. Download more lessons and challenges, as desired. Multiple users can keep their own progress in the app. Also, there are customization options, recording, and sharing for more advanced users.

### IS IT ANY GOOD?

This play-to-learn app is an engaging, eye-pleasing, and easy way for tweens, teens, and adults to learn the programming language Swift. There's lots of help through clear instructions and hints that are available when a user gets stuck on a puzzle. The glossary of common coding terms gets kids up to speed on the lingo. Also, the ability to tap on snippets of real code cuts down on typing. For kids who can read

well (the vocabulary ramps up as lessons progress), Swift Playgrounds will feel much more like free-flow fun than coding lessons. The only downside is that you need a new-ish iPad to use it, which may be a dealbreaker for those who can't afford to upgrade. Going beyond coding blocks, Swift Playgrounds is an exploratory, low-pressure way to learn Swift that feels like, well, a playground.

### APP DETAILS

**Device:** iPad | **Price:** Free

**Release date:** 9/13/16

**Category:** Education | **Publisher:** Apple

**Software requirements:** iOS 10.0 or later

**Rating:** Recommended for ages 10 and older

Quality	● ● ● ● ●
Ease of play	● ● ● ● ●
Educational value	● ● ● ● ●
Violence	● ● ● ● ●
Language	● ● ● ● ●
Consumerism	● ● ● ● ●

## FIFA 17

Superb soccer simulation is tons of fun for fans

By Marc Saltzman  
Common Sense Media

Parents need to know that "FIFA 17" is a soccer simulation. There's no inappropriate content in this game, although there's lots of ads for companies like Nike, Adidas, and others, and these ads are constantly updating with new content. Parents should also be aware that unmonitored online play could expose players to inappropriate commentary from opponents.

### WHAT'S IT ABOUT?

"FIFA 17" is a simulation that virtually recreates the world's most popular sport. As you might expect from such an offering, gamers can select their favorite team, take control over all the players and vie for supremacy on the pitch. This year's game offers multiple solo and multiplayer modes (both online and in front of the same TV), visual improvements, enhancements to artificial intelligence (A.I.), ball control, and a dramatic boost to the emotion shown in the game. "FIFA 17" houses hundreds of officially licensed clubs and many thousands of authentic players who look and act like their real-life counterpart.



### IS IT ANY GOOD?

Most annual sports games don't often impress because of the short 9-month (or so) development cycle. But "FIFA 17" is extraordinarily fun. With the gorgeous graphics, tweaked controls, new attack options, and especially the new story mode, this is the best soccer game on the planet. For the first time ever in this franchise, you play as Alex Hunter, a young and promising prospect who made it to the English Premier League. You can choose to play on any club in the league, alongside some of the best players, and make decisions on and off the pitch that change the story. There's a role-playing game (RPG)-like element, too, as you increase your skills over time.

The game, player and ball movements have been improved upon, along with artificial intelligence (A.I.), new attacking techniques, and more. FUT or FIFA Ultimate Team, is back and better than ever. The mode tests your team-building skills as you choose the best fit for each position, and then compete with them. While the character models and animation looks great, some player's faces – when trying to convey emotion in The Journey mode – don't look so good. Plus, while the voice talent is great, some key characters have dialog, while others don't. "FIFA 17" also doesn't allow for a lot of player customization. But feature for feature, and when you factor in the new story mode and higher production values, "FIFA 17" is most definitely worth the cash among footy fans.

### GAME DETAILS

**Platforms:** PlayStation 3, PS4, Xbox 360, Xbox One

**Price:** \$59.99 | **Developer:** EA Sports

**Release date:** 09/26/16 | **Genre:** Sports

**ESRB Rating:** E for everyone, recommended for ages 10 and older

Quality	● ● ● ● ●
Positive messages	● ● ● ● ●
Positive role models	● ● ● ● ●
Ease of play	● ● ● ● ●
Violence	● ● ● ● ●
Language	● ● ● ● ●
Consumerism	● ● ● ● ●

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Compiled by Angela Zimmerman and edited by Johnnie Miller-Cleaves



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**CREDIT UNION**

The credit union is a typical example of an economic institution.

The credit union is a member-owned financial cooperative which is democratically controlled by its members and operated for the purpose of promoting thrift, providing credit at competitive rates, and providing other financial services to its members.

A credit union differs from banks and other financial institutions in that the members who have accounts in the credit union are the owners of the credit union, and they elect their board of directors in a democratic one-person-one-vote system, regardless of the amount of money invested in the credit union.

**NOT-FOR-PROFIT STATUS**

In the credit union context, 'not-for-profit' should not be confused with 'non-profit' charities or similar organisations. A credit union is 'not-for-profit' because it operates to serve its members rather than to maximise profits. However, unlike non-profit organisations, a credit union does not rely on donations

and is a financial institution that must turn what is, in economic terms, a small profit (i.e., 'surplus') to be able to continue to serve its members.

**COMMERCIAL BANKS**

A commercial bank is a profit-based financial institution that grants loans, accepts deposits and offers other financial services such as overdraft facilities and electronic transfer of funds. Commercial banks are open to the public and serve individuals, institutions and businesses.

**FUNCTIONS**

A commercial bank is authorised to serve the following functions:

- Receive deposits – Takes money in from individuals and businesses (called depositors).
- Disburse payments – Makes payments upon the direction of its depositors, such as honoring a cheque.
- Collections – Acts as an agent to collect funds from another bank, payable to you, such as when someone pays you by cheque

drawn on an account from a different bank.

- Invest funds in securities for a return.
- Safeguard money – Banks are considered a safe place to store your wealth.
- Maintain and service savings and chequing accounts of its depositors.
- Maintain custodial accounts – Accounts controlled by one person but for the benefit of another person, such as a trust account.
- Lends money

**ACTIVITIES**

1. Suggest THREE reasons why economic institutions are seen as important to any society.
2. State THREE factors that differentiate a bank from a credit union; explain your answers.
3. Look up on the roles and functions of the banks in your society.

Maureen Campbell is an independent contributor. Send questions and comments to [kerry-ann.hepburn@gleanerjm.com](mailto:kerry-ann.hepburn@gleanerjm.com)

yl: english language

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**REDUNDANCY**

A redundant (or superfluous) expression is one in which an idea is repeated unnecessarily. It usually involves two or more words and the repetition does not do anything to enhance meaning. Some very common ones are: repeat again, reverse back, refund back and ATM machine. It is important that you are able to spot and avoid them in your own writing. For the summary writing activity you will get on Paper Q2, condensing information is vital, and being able to pick up redundant expressions is a big part of that.

**ACTIVITY 2**

**Instruction:** For each sentence below, identify and correct the redundant expression.

1. The man was killed in a fatal car crash.
2. As we walked across the beach, our toes sank down in the sand.
3. Her hair was a surprisingly bright blue in colour.
4. Teenagers are often blamed for their out of control and reckless behaviour.
5. His dance routine was rather unique and quite unlike anything he had ever seen before.
6. We should never reveal our debit card's PIN number.
7. "A pleasant, good morning to you all," said Mr Powers to the group.
8. He planned his presentation in advance, so

he could be thoroughly prepared.

9. My father combined all the ingredients together for the Christmas cake.
10. The police chased after the criminal who stole the lady's purse.
11. The people who came to the concert were few in number.
12. The teachers were encouraged to interact with each other before the session started.
13. Everybody was surprised when she returned back from overseas so quickly.
14. If all of us cooperate together, we will succeed.
15. He carefully examined each and every letter.

Please work on these activities and share with your peers or your teachers to see how you did.

Previous Lesson's Answers:  
Activity 1: simile, alliteration, personification, metaphor, irony, oxymoron, pun, hyperbole, pun, irony, oxymoron, repetition, alliteration, personification and metaphor

Activity 2: 1. D 2. B 3. C 4. D 5. A 6. B 7. B 8. C 9. B

**Vocabulary top-up:** Jovial: Happy and cheerful, Justify: To prove something to be just or valid, to defend (an action) as being warranted

See you next week!

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yl: mathematics

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Let us attempt another example:  
Given that  $f(x) = x + 2$  and  $g(x) = 3/x$ ,

- (i) calculate  $f(-1)$
- (ii) write an expression for  $gf(x)$
- (iii) calculate the values of  $x$  so that  $f(x) = g(x)$

**SOLUTION**

(i) Since  $f(x) = x + 2$   $f(-1) = -1 + 2 = 1$ .  
 $f(-1) = 1$

(ii) Given the values of  $f(x)$  and  $g(x)$  above,  
 $gf(x) = g(x + 2)$   
 $gf(x) = 3/(x+2)$ .

NB: In the composite function  $gf(x)$ ,  $f(x)$  replaces  $x$  in  $g(x)$ .

(iii) Given that  $f(x) = g(x)$   
 $x + 2 = 3/x$

Simplifying by multiplying both sides by  $x$ .  
 $x(x + 2) = x \times 3/x$   
 $x^2 + 2x = 3$   
 $x^2 + 2x - 3 = 0$

Solve the quadratic equation using the factorization method:  
 $(x + 3)(x - 1) = 0$   
 $x + 3 = 0$   $x = -3$

OR  $x - 1 = 0$   $x = 1$   
Answer:  $x = -3$  Or  $x = 1$

As usual, I close with your homework.  
■ Given that  $f : x \rightarrow 3x + 2$   
 $g : x \rightarrow 5x - 1$

Evaluate:  
(i)  $g(-3)$  (ii)  $fg(2)$

■ If  $f(x) = 2x - 3$  and  $g(x) = 1/2(x + 1)$ ,

Calculate  
(i)  $f(3)$   
(ii)  $gf(3)$ .  
(iii) Find  $x$ , given that  $g(x) = f(x)$ .

■ The functions  $f$  and  $g$  are defined as follows:

$f(x) = 2x + 5$

$g(x) = x - 3/2$

Evaluate:  
i)  $f(19)$   
ii)  $gf(3)$

Enjoy your week.

Clement Radcliffe is an independent contributor.  
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