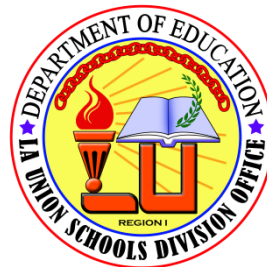


Senior High School



# General Mathematics

## Module 13:

### Stocks and Bonds



**AIRs - LM**

Government Property  
**NOT FOR SALE**

## GENERAL MATHEMATICS

Module 13: Stocks and Bonds  
Second Edition, 2021

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Region I

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**Senior High School**

**General Mathematics**  
**Module 13:**  
**Stocks and Bonds**



## **Introductory Message**

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. And read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.



## Target

**Stocks** and **bonds** are two of the most traded types of assets – each available for sale on several platforms or through a variety of markets or brokers (*Investopedia.com*). Both are examples of **passive investments** where the investors involve less buying and selling.

After going through this learning module, you are expected to:

1. illustrate stocks and bonds **(M11GM-IIe-1)**;
2. distinguish between stocks and bonds **(M11GM-IIe-2)**;
3. describe the different market for stocks and bonds **(M11GM-IIe-3)**; and
4. analyze the different market indices for stocks and bonds **(M11GM-IIe- 4)**.

Learning Objectives:

1. define stocks and bonds
2. make a comparison between stocks and bonds
3. familiarize yourselves with the market for stocks and bonds
4. answer problems involving the market indices of stocks and bonds

*Before going on, check how much you know about this topic. Answer the pretest on the next page in a separate sheet of paper.*

## Pretest

**Directions:** Read each item carefully and select the correct answer. Write the letter of your choice on a separate sheet of paper.

1. Which is an investment where the investors become a part owner of the company?  
A. Bank Deposits  
B. Bonds  
C. Fixed Deposits  
D. Stocks
2. Which of the following statements is TRUE about stocks?  
A. It is very risky.  
B. Prices vary every day.  
C. Investors become part owner of the company.  
D. All of the above
3. Which of the following statements is NOT TRUE about bonds?  
A. Low risk but low yield.  
B. Investors become part owner of the company.  
C. Appropriate for retirees or for those who will need the money soon.  
D. Investors are guaranteed with interest payments and a return of their money at the maturity date.
4. Where can you buy or sell stocks?  
A. Grocery  
B. Mall  
C. Public Market  
D. Stock Market
5. What do you call the current price of a stock at which it can be bought/sold?  
A. Cash Value  
B. Current Value  
C. Market Value  
D. Place Value
6. A government agency issued bond certificates indicating 10.25% annual interest. How much yield will an investor get after a year if he invests two million pesos?  
A. Php 200 000  
B. Php 205 000  
C. Php 210 000  
D. Php 215 000

*For numbers 7 - 8, use the information below.*

Salaknib Incorporated issued 200 000 shares of stocks. Fifteen percent of these are preferred stocks and the rest are common stocks.

7. How many shares are common stocks?  
A. 170 000  
B. 180 000  
C. 190 000  
D. 200 000
8. How many shares are preferred stocks?  
A. 10 000  
B. 20 000  
C. 30 000  
D. 40 000

*For numbers 9 – 10, analyze the given statements.*

9. You can buy/sell shares of stock anywhere.  
A. The statement is NEVER TRUE  
B. The statement is ALWAYS TRUE  
C. The statement is SOMETIMES TRUE  
D. Cannot be determined

10. Greediness is a good attitude of stockholders.
- A. The statement is NEVER TRUE
  - B. The statement is ALWAYS TRUE
  - C. The statement is SOMETIMES TRUE
  - D. Cannot be determined

*For numbers 11 - 15, please refer to the given listing on stocks.*

| 52 weeks |     |       |      |      |            |        |        |
|----------|-----|-------|------|------|------------|--------|--------|
| HI       | LO  | STOCK | DIV  | YLD% | VOL (100s) | CLOSE  | NETCHG |
| 125      | 110 | ABC   | 3.25 | 2.55 | 3 250      | 115.50 | 2.15   |

11. What was the lowest price of the stock for the last 52 weeks?
- A. Php110
  - B. Php115
  - C. Php120
  - D. Php124
12. How much was the dividend per share last year?
- A. Php3.00
  - B. Php3.25
  - C. Php3.50
  - D. Php3.75
13. What was the annual percentage yield last year?
- A. 2.55%
  - B. 3.55%
  - C. 4.55%
  - D. 5.55%
14. What was the closing price in the last trading day?
- A. Php105.50
  - B. Php115.50
  - C. Php125.50
  - D. Php135.50
15. What was the closing price the day before the last trading day?
- A. Php113.35
  - B. Php114.35
  - C. Php115.35
  - D. Php116.35



## Jumpstart

Stocks and bonds are certificates that are sold to raise money for starting a new company or for expanding an existing company. They are also called securities, and people who buy them are called investors ([www.scholastic.com](http://www.scholastic.com)).

*For you to understand the lesson well, do the following activities.  
Have fun and good luck!*

### Activity 1: FACT OR BLUFF

**Directions:** Write FACT if the statement is correct otherwise write BLUFF.

1. Bond is an investment wherein the investors become part owner of the company.
2. Bond is a way of raising money by borrowing from investors.
3. Stockholders have NO voting rights during board meetings.
4. Bondholders have voting rights during board meetings.
5. Stocks have high risk but higher yield.
6. Bonds have low risk but lower yield.
7. Prices of bonds vary every day.
8. Stockholders are guaranteed with fixed interest at the maturity date.
9. Bond is appropriate for long term investment.
10. Stock is appropriate for those who need the money soon.

Market Indices for Stocks and Bonds determine the country's economic progress. These indices gather data from major companies that greatly affect our economy. These companies represent a particular sector in our economy. In the Philippines we have San Miguel Corporation for manufacturing, the oil companies Petron, Shell, and Caltex, for telecommunications, Smart and Globe, for banking/financial industry we have BDO, Metrobank and BPI and many others.

*Let's see if you are familiar with the tag line of various businesses by doing the activity that follows.*

### Activity 2: NAME THAT BUSINESS

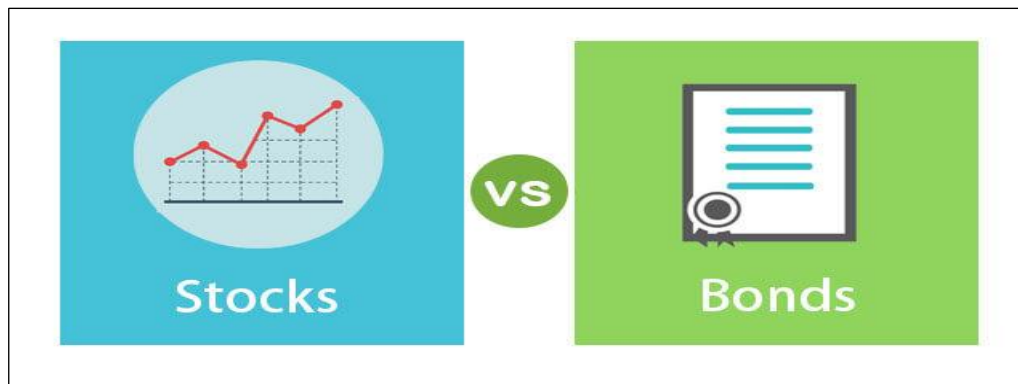
**Directions:** Determine the company/business which uses the given tag line. Write your answers in the answer sheet.

- |                          |                              |
|--------------------------|------------------------------|
| 1. We find ways.         | 6. Abot mo ang mundo.        |
| 2. Bida ang sarap!       | 7. May liwanag ang buhay.    |
| 3. Taste the feeling.    | 8. The power to lead.        |
| 4. You're in good hands. | 9. We've got it all for you! |
| 5. We're changing lives. | 10. We fuel success.         |





## Discover



Source: wallstreetmojo.com

### STOCKS

Some corporations may raise money for their expansion by issuing stocks. **Stocks** are shares in the ownership of the company. Owners of stocks may be considered as part owners of the company. There are two types of stocks: **common stock** and **preferred stock**. Both will receive dividends or share of earnings of the company. Dividends are paid first to preferred shareholders.

Stocks can be bought or sold at its current price called **market value**. When a person buys some shares, the person receives a **certificate** with the corporation's name, owner's name, number of shares and par value per share (*DepEd General Mathematics Learner's Module - 2016*).

#### Sample Problem:

*Rang-Ay Corporation* issued 250 125 shares of stocks to its investors. Forty percent of this is preferred stocks and the rest, common stocks.

- How many common stocks were issued?
- How many preferred stocks were issued?

#### Solution:

a. Common stocks =  $100\% - 40\% = 60\% = 0.6$   
 $250\ 125 \times 0.6 = \mathbf{150\ 075\ Common\ Stocks}$

b. Preferred stocks =  $40\% = 0.4$   
 $250\ 125 \times 0.4 = \mathbf{100\ 050\ Preferred\ Stocks}$

### BONDS

**Bonds** are interest bearing security which promises to pay an amount of money on a certain maturity date as stated in the **bond certificate**. Unlike the stockholders, bondholders are lenders to the institution which may be a

government or private company. Some bond issuers are the national government, government agencies, government owned and controlled corporations, non-bank corporations, banks and multilateral agencies. Bondholders do not vote in the institution's annual meeting but the first to claim in the institution's earnings. On the maturity date, the bondholders will receive the face amount of the bond. Aside from the face amount due on the maturity date, the bondholders may receive coupons (payments/interests), usually done semi-annually, depending on the coupon rate stated in the bond certificate. (*DepEd General Mathematics Learner's Module - 2016*).

### Sample Problem:

A government owned corporation issued bond certificates bearing 6.25% annual interest. Mrs. Dela Cruz, a retired teacher, invested Php1.25 Million. How much will her investment be after a year?

### Solution:

$$6.25\% = 0.0625$$

$$\text{Interest} = \text{Php}1\,250\,000 \times 0.0625 = \text{Php}78\,125$$

$$\begin{aligned} \text{Total Investment after 1 year} &= \text{Php}1\,250\,000 + \text{Php}78\,125 \\ &= \mathbf{\text{Php}1\,328\,125} \end{aligned}$$

The **Stock Index** can be a standard by which investors can compare the performance of their stocks. This is being reported in the business section of newspapers, magazines or even online (*DepEd General Mathematics Learner's Module - 2016*)

The table below is an example of how a list of index value is presented (values are hypothetical).

| Index          | Val        | Chg    | % Chg |
|----------------|------------|--------|-------|
| PSEi           | 6 253 .84  | -15.22 | -0.24 |
| Financials     | 4 075.22   | 4.28   | 0.11  |
| Holding Firms  | 6 925.32   | 2.87   | 0.04  |
| Industrial     | 12 298.21  | 252.53 | 2.05  |
| Property       | 2 125.82   | -10.97 | -0.52 |
| Services       | 2 584.33   | 287.32 | 11.12 |
| Mining and Oil | 12 947. 82 | 29.21  | 0.23  |

where:

*Val* – value of the index

*Chg* – change of the index value from the previous trading day (value today minus value yesterday).

*%Chg* – ratio of Chg to Val (Chg divided Val)

The **bond market index** is a measure of a portion of the bond market. The main platform for bonds or fixed income securities in the Philippines is the Philippine Dealing and Exchange Corporation (PDEX). Unlike stock indices which are associated with virtually every stock market in the world, bond market indices are far less common. In fact, other than certain regional bond indices which have sub-indices covering the Philippines, our bond market does not typically compute a bond market index. Instead, the market rates produced from the bond market are interest rates which may be used as benchmarks for other financial instruments.

Government bonds are auctioned out to banks and other brokers and dealers every Monday by the Bureau of Treasury. Depending on their terms (or tenors), these bonds are also called treasury bills (t-bills), treasury notes (t-notes), or treasury bonds (t-bonds). The resulting coupon rates and the total amount sold for these bonds are usually reported by news agencies on the day right after the auction. Since these bond transactions involve large amounts, these bonds are usually limited to banks, insurance firms, and other financial institutions. The banks may then re-sell these bonds to its clients.

Despite the fact that bond investing is considered safer than stock investing, there is still some risk involved. The most extreme scenario is default by the issuer. In this case, the investor can lose not only the coupons, but even the money invested in the bond, bond investors should then be aware of the financial condition of the issuer of the bond and of prevailing market conditions. (*DepEd General Mathematics Learner's Module - 2016*).

### Sample Problem

Analyze the given listing of stocks then answer the questions that follow:

| 52 weeks |     |       |      |      |               |        |        |
|----------|-----|-------|------|------|---------------|--------|--------|
| HI       | LO  | STOCK | DIV  | YLD% | VOL<br>(100s) | CLOSE  | NETCHG |
| 105      | 100 | RDL   | 2.75 | 2.25 | 5 250         | 125.50 | -0.75  |
| 15       | 12  | YKL   | 1.25 | 1.2  | 1 750         | 14.55  | 0.23   |

### For stock RDL

1. What was the lowest price of the stock for the last 52 weeks?

**Answer:** Php100

2. How much was the dividend per share last year?

**Answer:** Php2.75

3. What was the annual percentage yield last year?

**Answer:** 2.25%

4. What was the closing price in the last trading day?

**Answer:** Php125.50

5. What was the closing price the day before the last trading day?

**Answer:**  $\text{Php}125.50 - (\text{Php}0.75) = \text{Php}126.25$

**For stock YKL**

1. What was the highest price of the stock for the last 52 weeks?

**Answer:** Php15

2. How much was the dividend per share last year?

**Answer:** Php1.25

3. What was the annual percentage yield last year?

**Answer:** 1.20%%

4. What was the closing price in the last trading day?

**Answer:** Php14.55

5. What was the closing price the day before the last trading day?

**Answer:**  $\text{Php}14.55 - \text{Php}0.23 = \text{Php}14.32$



## Explore

**Enrichment Activity 1: Stocks VS Bonds**

**Directions:** Make a comparison between Stocks and Bonds along the indicated areas by completing the given table below.

| Area                      | Stocks | Bonds |
|---------------------------|--------|-------|
| Ownership of the business |        |       |
| Price                     |        |       |
| Income                    |        |       |
| Risk of Investment        |        |       |
| Possible Clients          |        |       |

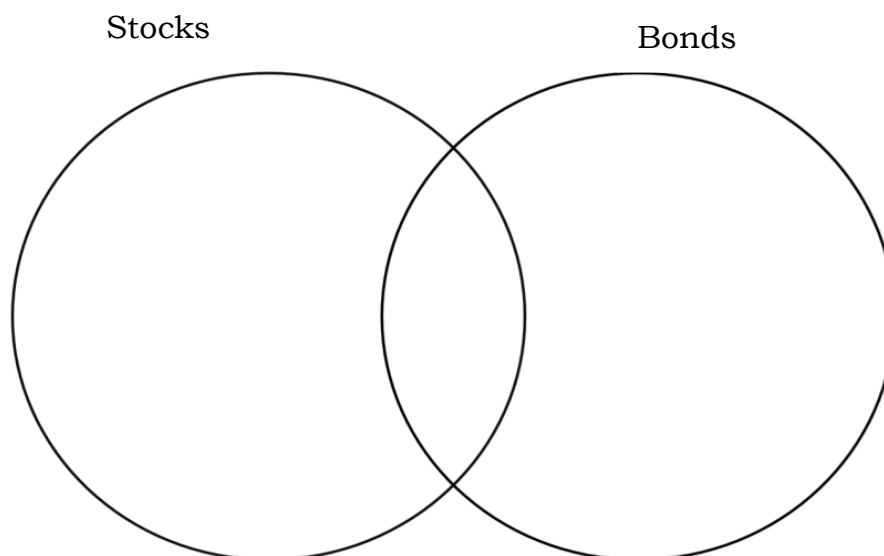
**Assessment 1**

Solve the following problems correctly. Show your solution and enclose your final answers in your answer sheet.

- Nasudi Corporation* issued 75 200 shares of stocks to its investors. Twenty-five percent of this is preferred stocks and the rest, common stocks.
  - How many common stocks were issued?
  - How many preferred stocks were issued?
- A government agency issued bond certificates bearing  $7\frac{1}{2}\%$  annual interest. Mr. Padua, a retired engineer, invested Php 2.175 Million. How much will his investment be after a year?

## Enrichment Activity 2: My Venn

For further understanding of the market indices of stocks and bonds, write their similarities and differences using Venn Diagram.



## Assessment 2

To enhance your understanding of the different market indices of stocks, study the given table and answer the questions that follow in your answer sheet.

| 52 weeks |     |       |      |      |               |        |        |
|----------|-----|-------|------|------|---------------|--------|--------|
| HI       | LO  | STOCK | DIV  | YLD% | VOL<br>(100s) | CLOSE  | NETCHG |
| 150      | 140 | CRD   | 5.25 | 3.75 | 2 750         | 135.70 | 0.45   |
| 22       | 17  | JCL   | 1.05 | 1.32 | 4 125         | 19.35  | -0.21  |

### For stock CRD

1. What was the lowest price of the stock for the last 52 weeks?  
*Answer:* \_\_\_\_\_
2. How much was the dividend per share last year?  
*Answer:* \_\_\_\_\_
3. What was the annual percentage yield last year?  
*Answer:* \_\_\_\_\_
4. What was the closing price in the last trading day?  
*Answer:* \_\_\_\_\_
5. What was the closing price the day before the last trading day?  
*Answer:* \_\_\_\_\_

**For stock JCL**

6. What was the highest price of the stock for the last 52 weeks?

Answer: \_\_\_\_\_

7. How much was the dividend per share last year?

Answer: \_\_\_\_\_

8. What was the annual percentage yield last year?

Answer: \_\_\_\_\_

9. What was the closing price in the last trading day?

Answer: \_\_\_\_\_

10. What was the closing price the day before the last trading day?

Answer: \_\_\_\_\_

**Deepen**

*For you to better understand the lesson, read the given situation below and answer the question that follows. Good luck and have fun!*

**Activity 1**

*Namnama Corporation* is planning to have a business expansion, but they are short of capital. Because of this, the Board of Directors agreed to offer their shares of stocks to possible business partners. Aside from that, they will also issue Bond Certificates at 6.25% annual interest to interested investors.

If you want to invest your money to *Namnama Corporation*, which will you prefer, to be their Stockholder or Bondholder? Justify your answer.

**Rubric for Scoring**

| <b>5 Points</b>  | <b>4 Points</b>  | <b>3 Points</b>  | <b>2 Points</b>  | <b>1 Point</b>                           |
|--|--|--|--|--|
| Answer is clearly stated and uses grammatically correct sentences. | Answer is clearly stated but does NOT use grammatically correct sentences. | Answer is NOT clearly stated but uses grammatically correct sentences. | Answer is NOT clearly stated and does NOT use grammatically correct sentences. | Answer is NOT connected to the question. |

## Activity 2

After learning about the market indices of stocks and bonds, you are now ready to make a choice. Read the given situation below then answer the question that follows in your answer sheet.

Mr. Ramos, a widower and a father of two, received Php 1.5 Million as retirement benefits. He is financially secured because his children have stable jobs, and they are giving him a monthly allowance which is adequate enough to pay his bills, foods and medications. Because of this, he wanted to invest his retirement benefits so that his children will benefit from it someday.

If you are a financial advisor, which investment will you recommend to Mr. Ramos, stocks or bonds? Why?

### Rubric for Scoring

| 5 Points   | 4 Points   | 3 Points   | 2 Points   | 1 Point                                  |
|--|--|--|--|--|
| Answer is clearly stated and uses grammatically correct sentences. | Answer is clearly stated but does NOT use grammatically correct sentences. | Answer is NOT clearly stated but uses grammatically correct sentences. | Answer is NOT clearly stated and does NOT use grammatically correct sentences. | Answer is NOT connected to the question. |

*Good job! You have already understood the lesson. Are you ready to summarize what you have learned?*

Reflect on the activities you have done in this lesson by completing the following sentences. Write your answers in your journal notebook.

I learned that I \_\_\_\_\_.

I surprised that I \_\_\_\_\_.

I noticed that I \_\_\_\_\_.

I discovered that I \_\_\_\_\_.

I am pleased that I \_\_\_\_\_.



1. A government agency issued bond certificates indicating 10.25% annual interest. How much yield will an investor get after a year if he invests two million pesos?



7. How much was the dividend per share last year?  
A. Php 3.00                      B. Php 3.25                      C. Php 3.50                      D. Php 3.75
8. What was the annual percentage yield last year?  
A. 2.55%                      B. 3.55%                      C. 4.55%                      D. 5.55%
9. What was the closing price in the last trading day?  
A. Php 105.50                      B. Php 115.50                      C. Php 125.50                      D. Php 135.50
10. What was the closing price the day before the last trading day?  
A. Php 113.35                      B. Php 114.35                      C. Php 115.35                      D. Php 116.35
11. Which is an investment where the investors become a part owner of the company?  
A. Bank Deposits                      B. Bonds  
C. Fixed Deposits                      D. Stocks
12. Which of the following statements is TRUE about stocks?  
A. Investors become part owner of the company.  
B. Prices vary every day.  
C. It is very risky.  
D. All of the above
13. Which of the following statements is NOT TRUE about bonds?  
A. Low risk but low yield.  
B. Investors become part owner of the company.  
C. Appropriate for retirees or for those who will need the money soon.  
D. Investors are guaranteed with interest payments and a return of their money at the maturity date.
14. Where can you buy or sell stocks?  
A. Grocery                      B. Mall  
C. Public Market                      D. Stock Market
15. What do you call the current price of a stock at which it can be sold?  
A. Cash Value                      B. Current Value  
C. Market Value                      D. Place Value

# ***References***

## **Printed Materials:**

Department of Education-Bureau of Learning Resources (DepEd-BLR). 2016. *General Mathematics Learner's Module*. Pasig City, Philippines. Lexicon Press Inc.

Melosantos, Luis Allan, et.al. 2016. *Math Connections in the Digital Age-General Mathematics*. Quezon City, Philippines. Sibs Publishing House, Inc.

## **Websites:**

Stocks and Bonds. Retrieved October 20, 2020 from [www.investopedia.com](http://www.investopedia.com)

Stocks and Bonds. Retrieved October 28, 2020 from [www.scholastic.com>articles>stocks and bonds](http://www.scholastic.com>articles>stocks and bonds)

Stocks vs Bonds/Top 7 Difference Between. Retrieved October 20, 2020 from [wallstreetmojo.com](http://wallstreetmojo.com)

Top 30 Companies from the Philippines' PSEi-ASEAN UP. Retrieved October 28, 2020 from [aseanup.com>top-30-companies](http://aseanup.com>top-30-companies)

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