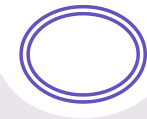


# *Interests & Commissions*



**BUSINESS MATH  
ABM STRAND**

# *The Skills We Need*



## **LESSON OBJECTIVES**

1. define commission;
2. define and give examples of straight commission;
3. define and give examples of salary plus commission;
4. define and give examples of graduated (variable and residual) commission.
5. compute commissions on cash basis;
6. compute commissions on instalment basis;
7. illustrate how to obtain down payment, gross balance, and current increased balance;
8. solve problems involving interests and commissions.

# *Motivation*



**FOCUSING TASK**

*Erick resigned from his job out of boredom and took a new job as a sales representative. Believing that he will enjoy more in this new job, he didn't really mind what he will get. The following are the options he was offered:*

1. His pay would be through straight commission basis.
2. He gets a fixed base salary plus a commission.
3. He gets paid through graduated commission.
4. He gets paid on commission by installment basis.

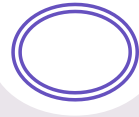
*If you were Erick, which mode of compensation would you take and why?*

# *Commissions*



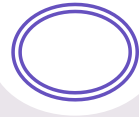
**WHAT / WHY / HOW**

# *What is a commission?*



- *A commission is a fee that a business pays to a salesperson (agent) in exchange for his services in either facilitating, supervising, or completing a sale.*
- *The commission may be based on a flat arrangement or as a percentage of the revenue generated by a salesperson. In other words, commission (remuneration) is a form of payment to an agent for services rendered.*

# Types of Commissions



- a. Straight Commission, also called (revenue commission) – *a commission based on a percentage of sales only. (This is very profitable if you are selling high-ticket items.)*



Example 1:

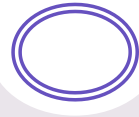
Mike receives 20% commission on the appliances he sells. If he sell a TV for PhP7,000, a refrigerator for PhP12,000, and a heater for PhP1500, how much does Mike make in commission?

Solution:

Total sales = PhP7,000 + PhP12,000 + PhP1,500 =  
PhP20,500

Commission = PhP20,500 x 20% = PhP 20,500 x 0.2 =  
PhP4,100

# Types of Commissions



- b. Salary plus Commission – a commission in which a salesperson gets his basic salary and a percentage of whatever sales he makes.

Example 2:

Mike decides to work for another company that will pay him PhP2,000 per week and 10% commission on sales above PhP20,000 for the week. If he sold goods worth PhP26,000, what is his gross pay (salary plus commission)?

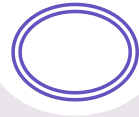
Solution:

Amount of goods sold minus salary of PhP20,000 =  
PhP26,000 – PhP20,000 = PhP6,000

His commission will be PhP6,000 x 10% = PhP6,000 x 0.1 =  
PhP600

Therefore, his gross pay for the week is PhP2,000 + PhP600  
= PhP2,600.

# *Types of Commissions*



- c. Graduated Commission – *a commission, which varies according to how much sales, is made.*

Example 3:

Mike works for a company that pays him 2% on the first PhP 20,000 sold, 3% on the next PhP30,000 sold and 5% on all sales beyond PhP50,000. What is his gross pay if he sells PhP60,000?

Solution:

First commission share = PhP20,000 x 2% = PhP20,000 x 0.02  
= PhP400

Second commission = PhP30,000 x 3% = +30,000 x 0.03 =  
PhP900

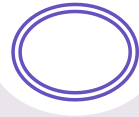
Third commission = (PhP60,000 - PhP50,000) x 5% =  
PhP10,000 x 0.05 = PhP500

Therefore, his gross pay is PhP400 + PhP900 + PhP500 =  
PhP1,800

*Note that this type of commission is lucrative for high achievers.*



# Cash vs. Installment



- a. Computing Commissions on Cash Basis -- This type of commission is similar to computing straight commissions.

Example 1:

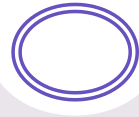
Mike works at ABC Gadget Store. For every cash purchase of a cell phone, he gets 6.1% commission. In a particular month, he was able to sell 10 cellphones costing PhP18,000 each. How much was his total commission for such cash sales?

Solution:

Total Sales = PhP18,000/cellphone x 10 cellphones =  
PhP180,000

Cash commission = PhP180,000 x 6.1% = PhP180,000 x 0.061  
= PhP10,980

# *Cash vs. Installment*



- b. Commission on Installment Basis

## Example 2:

At ABC Gadget Store, some items are paid on installment basis through credit cards. Mike was able to sell 10 cellphones costing PhP18,000 each. Each transaction is payable in 6 months equally divided into 6 equal installments without interest. Mike gets 2% commission on the first month for each of the 10 cell phones. Commission decreases by 0.30% every month thereafter and computed on the outstanding balance for the month. How much commission does Mike receive on the first month? On the second month? On the third month? On the fourth month? On the fifth month? On the sixth month? At the end of installment period, how much will be his total commission?

Solution:

First month commission: PhP18,000/cellphone x 10 cellphones x 0.02  
= PhP3,600

Second month commission: PhP15,000/cellphone x 10 cellphones x  
(0.02 – 0.003) = PhP2,550

Third month commission: PhP 12,000/cellphone x 10 cellphones x  
(0.017 – 0.003) = PhP1,680

Fourth month commission: PhP 9,000/cellphone x 10 cellphones x  
(0.014 – 0.003) = PhP990

Fifth month commission: PhP 6,000/cellphones x 10 cellphones x  
(0.011 – 0.003) = PhP480

Sixth month commission: PhP3,000/cellphone x 10 cellphones x  
(0.008 – 0.003) = PhP150

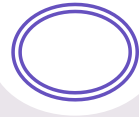
His total commission for six months is PhP9,450.

# *The Downpayment*



**WHAT / WHY / HOW**

# *The Down payment*



- The Down payment is a first payment that one makes when one buys something with an agreement to pay the rest later.
- But how do we obtain the downpayment?



Example 1: When one purchases a car or any big item not through cash but installment terms, normally, a certain down payment is required of the buyer. Car dealers normally require a minimum down payment, which is usually 20% of the total cost of the vehicle being purchased. The interest on the remaining balance is then computed depending on the number of years a buyer would want to amortize the remaining balance. If a car costs PhP1,000,000 and a minimum 20% down payment is required by the company, then the buyer will have an initial cash out of PhP200,000; that is,  $20\% (1,000,000) = \text{PhP}200,000$ . The remaining PhP800,000 will be amortized monthly and the amount of monthly amortization depends on the number of years the buyer will want to pay the loan. Normally, buyers prefer a 3-year or 5-year payment period. The lesser the number of years, the lesser the total amount of money paid as interest to the loan. But with this arrangement, the monthly amortization will be considerably higher than when one chooses to pay the balance for longer number of years.

Example 2: Companies selling houses or condo units lure buyers by stating that no down payment is required but only a certain amount of reservation fee is required. The reservation fee paid is deductible when the buyer decides to proceed with the purchase. Otherwise, it will be forfeited in favor of the company. After the reservation fee has been paid, the buyer is told to pay the monthly amortization. For instance, P10,000 per month for two years without interest. At the end of two years, the remaining balance will now be subjected to an interest either through in-house or bank financing.

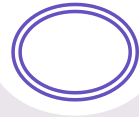
Example 3: Other companies selling houses or condo units also have schemes like requiring the buyer to pay a certain cash amount after one year aside from the monthly amortization. The cash amount increases for the next year up to the third year. At the end of the third year, all cash amounts and monthly amortizations paid by the buyer are deducted from the purchase price of the unit being bought. The remaining amount will be the one subjected to an interest either through in-house or bank financing.

# *Book vs. Increased Balance*



**WHAT / WHY / HOW**

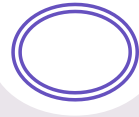
# Book/Gross Balance



- This refers to the total amount of money a bank has on deposit before adjusting for uncleared checks or deposits, as well as reserve requirements. That is, the book balance is a measure of what the bank has on hand before adding or subtracting regulatory obligations and items that will soon appear on its books. This is the term used by banks to describe the amount of money available before any adjustment is made for deposits in transit, checks that have not been cleared, and reserve requirements and interest received from “float funds”.

Example 1: A simple case of gross balance refers to what is readily available for you to use based on your bank deposits. For example, a check amounting to PhP5,000 that has been deposited today may not be withdrawn the next day because it has not cleared yet. If your bank passbook currently contains PhP30,000, you may not be able to withdraw the whole amount yet because your gross balance is only PhP25,000 since your check has not been cleared yet.

# *Increased Balance*



- *This may refer to the total amount you have to pay that includes penalties or interest incurred by unpaid balance from a loan or payment you are supposed to have made but was not able to do so on time.*

## Example 1:

As of this month's cut-off date, the current total amount due from your purchases using your credit card is PhP 99,386.59. The minimum required payment is 5% of the total amount due. If you pay only the minimum required payment, a financing charge of 3.4% of the remaining balance will be charged to the next bill. Assuming you refrain from using your credit card on any of your purchases for the next 3 months and the financing charge of 3.4% is charged every billing period, show your expected monthly bill for the next 3 months.



Solution: Given the current bill of PhP 99,386.59, the minimum required payment is  $0.05(99,386.59) = \text{PhP}4,969.33$ . If only the minimum required payment is paid, then the remaining debt balance is  $99,386.59 - 4,969.33 = \text{PhP}94,417.26$ . Assuming there are no credit bill transactions for the next 3 months and only the minimum required payment each month is paid, the table below shows the monthly total amount due for each of the next 3 months.

Time t (month)	Total amount due for the month	Minimum required payment for the month
0	99,386.59	$0.05(99,386.59) = 4,969.33$
1	$(99,386.59 - 4,969.33) + .034(99,386.59 - 4,969.33)$ $= 94, 417.26 + .034(94, 417.26)$ $= 1.034(94, 417.26)$ $= 97,627.45$	$0.05(97,627.45) = 4,881.37$
2	$1.034(97,627.45 - 4,881.37)$ $= 1.034(92,746.08)$ $= 95,899.45$	$0.05(95,899.45) = 4,794.97$
3	$1.034(95,899.45 - 4,794.97)$ $= 1.034(91,104.48)$ $= 94,202.03$	$0.05(94,202.03) = 4,710.10$

Observe that for the next 3 months, a total of PhP14,386.44 has already been paid for the credit card bills. However, only PhP5,184.56 ( $99,386.59 - 94,202.03$ ) has been deducted so far from the original debt of PhP99,386.59. Hence, every time we keep paying only the required minimum payment, more money goes to interest payments rather than payment of the actual debt.

From the above example, your minimum required payment of PhP4,969.33 serves as your down payment for your loan of PhP99,386.59 leaving you with a balance of PhP94,417.26 at the start of the month. However, because there is a finance charge of 3.4%, if you are not able to pay for the next month, your current increased balance will become PhP97,627.45.

*It's your turn...*



**EVALUATION**

1. Juan makes money by commission rates. He gets 15% of everything he sells. If Juan sold PhP230,000 worth of items this month, what is his salary for the month?
2. Mark makes PhP12,000 a month plus some money by commission rates. He gets 8% of everything he sells. If Mark sold PhP60,000 worth of items this month, what is his salary for the month?
3. John receives PhP10,000 as monthly salary. As an agent, his monthly quota is PhP50,000 worth of beauty products for which he gets 5% commission on all sales beyond his monthly quota. If he sold PhP75,000 worth of beauty products this month, what is his total salary for this month?

4. A sales agent receives PhP12,000 a month corresponding to a sales of PhP30,000 worth of goods. Furthermore, he receives an additional 6% commission for all sales beyond his monthly quota but not greater than PhP50,000. An additional 3% commission is for sales beyond PhP50,000. If his sales is PhP70,000 for the month, how much is his salary for the month?

5. A tutor at ABC Learning Center receives a monthly base pay of PhP8,000 corresponding to a PhP5,000 tutorial fee input to the Center. He gets a share of 15% of all tutorial fees beyond the mandatory PhP15,000 input. If each student he handles pays PhP6,000/month on tutorial fees and he has five students for the month, how much share does he receive beyond his base pay?

6. A salesperson gets a commission for his sales based on the following scale:

6% on all sales

5% on all sales between PhP50,000 and PhP100,000

4% on all sales over PhP100,000

If his total sales was PhP150,000, what is his gross pay?

7. A real-estate agent receives a 3% commission of PhP300,000 for selling a house. What was the price of the house?

8. An appliance center agent sold a set of kitchen utensils for PhP20,000 and got a PhP600 commission. What was the commission rate?

9. Miguel earns a commission of 10% which is PhP10,000. How much did he sell?
  
10. Carlo sold his house for PhP8,000,000. The real-estate agent got a 5% commission from the sales. From his commission, he has to pay BIR tax and other obligations required for the transfer of ownership of the property to the buyer. This expense represents 6% of his total commission. How much net amount will he receive?



# *Evaluation*



**SOLUTIONS**

1. Juan makes money by commission rates. He gets 15% of everything he sells. If Juan sold PhP230,000 worth of items this month, what is his salary for the month?

Solution:  $\text{Salary} = 15\% (\text{PhP}230,000) = 0.15 (230,000) = \text{PhP}34,500$

2. Mark makes PhP12,000 a month plus some money by commission rates. He gets 8% of everything he sells. If Mark sold PhP60,000 worth of items this month, what is his salary for the month?

Solution:  $\text{Commission} = 8\% (\text{PhP}60,000) = \text{PhP}4,800$ . His salary for the month =  $\text{PhP}12,000 + \text{PhP}4,800 = \text{PhP}16,800$ .

3. John receives PhP10,000 as monthly salary. As an agent, his monthly quota is PhP50,000 worth of beauty products for which he gets 5% commission on all sales beyond his monthly quota. If he sold PhP75,000 worth of beauty products this month, what is his total salary for this month?

Solution:  $\text{Sales beyond his quota} = \text{PhP}75,000 - \text{PhP}50,000 = \text{PhP}25,000$ . His commission is  $5\% (\text{PhP}25,000) = .05 (25,000) = 1250$ . His monthly salary is  $\text{PhP}10,000 + \text{PhP}1250 = \text{PhP}11,250$ .

4. A sales agent receives PhP12,000 a month corresponding to a sales of PhP30,000 worth of goods. Furthermore, he receives an additional 6% commission for all sales beyond his monthly quota but not greater than PhP50,000. An additional 3% commission is for sales beyond PhP50,000. If his sales is PhP70,000 for the month, how much is his salary for the month?

Solution: His first commission is  $6\% (\text{PhP}50,000 - \text{PhP}30,000) = 0.06 (20,000) = \text{PhP}1,200$ . His second commission is  $3\% (\text{PhP}70,000 - \text{PhP}50,000) = 0.03 (20,000) = \text{PhP}600$ . His salary for the month is  $\text{PhP}12,000 + \text{PhP}1,200 + \text{PhP}600 = \text{PhP}13,800$ .

5. A tutor at ABC Learning Center receives a monthly base pay of PhP8,000 corresponding to a PhP5,000 tutorial fee input to the Center. He gets a share of 15% of all tutorial fees beyond the mandatory PhP15,000 input. If each student he handles pays PhP6,000/month on tutorial fees and he has five students for the month, how much share does he receive beyond his base pay?

Solution: He contributes  $\text{PhP}6,000 \times 5 = \text{PhP}30,000$ . He gets a share of  $15\% (\text{PhP}30,000 - \text{PhP}15,000) = 0.15 (15,000) = \text{PhP}2,250$ .

6. A salesperson gets a commission for his sales based on the following scale:

6% on all sales

5% on all sales between PhP50,000 and PhP100,000

4% on all sales over PhP100,000

If his total sales was PhP150,000, what is his gross pay?

Solution: First commission =  $6\% (\text{PhP}150,000) = 0.06 (150,000) = \text{PhP}9,000$ ; second commission =  $5\% (\text{PhP}100,000 - \text{PhP}50,000) = 0.05 (50,000) = \text{PhP}2,500$ ; third commission =  $4\% (\text{PhP}150,000 - \text{PhP}100,000) = 0.04 (50,000) = \text{PhP}2,000$ . His total commission, which serves as his gross pay, is  $\text{PhP}9,000 + \text{PhP}2,500 + \text{PhP}2,000 = \text{PhP}13,500$ .

7. A real-estate agent receives a 3% commission of PhP300,000 for selling a house. What was the price of the house?

Solution: PhP300,000 represents 3% of the total cost of the house; that is,  $3\%(\text{house cost}) = 300,000$ . The price of the house =  $300,000 / .03 = \text{PhP}10,000,000$ .

8. An appliance center agent sold a set of kitchen utensils for PhP20,000 and got a PhP600 commission. What was the commission rate?

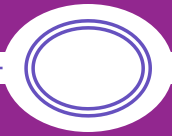
Solution: The commission rate is obtained from the equation  $600 = r\% (20,000)$ . This gives  $r = 3\%$ .

9. Miguel earns a commission of 10% which is PhP10,000. How much did he sell?

Solution: The amount he sold is given by  $\text{PhP}10,000/10\% = \text{P}100,000$ .

10. Carlo sold his house for PhP8,000,000. The real-estate agent got a 5% commission from the sales. From his commission, he has to pay BIR tax and other obligations required for the transfer of ownership of the property to the buyer. This expense represents 6% of his total commission. How much net amount will he receive?

Solution: His commission amounts to  $5\% (\text{PhP}8,000,000) = \text{PhP}400,000$ . If BIR tax is 6% of his commission, the net amount he will receive corresponds to 94% of PhP400,000 which is PhP376,000.



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*THANK YOU!*