What Is This Module About?

If you were given a map and asked to locate a particular place, would you be able to do so?

Knowing how to interpret and draw maps to scale is very useful. This knowledge, for example, can help you find out the distance between two objects or places. If you want to travel from one barangay to another, you will then know the directions you should take and how near or far you should travel.

This module will teach you how to interpret maps and scales. It will also teach you how to read the directions on a map. It will also teach you how to compute the distance between two places using a map.

This module is made up of two lessons:

Lesson 1—*Maps*

Lesson 2—*Scales*

What Will You Learn From This Module?

After studying this module, you should be able to:

- construct a map of a particular area or place;
- construct scales of objects and places;
- read and interpret maps of particular areas;
- read and interpret scales of objects and places; and
- find the distance between two places using a map.

Let's See What You Already Know

Before you start studying this module, take this simple test first to find out how much you already know about the topics to be discussed.

A. What are the four primary directions used in a map?

1. _____
2. _____
3. _____
4. _____

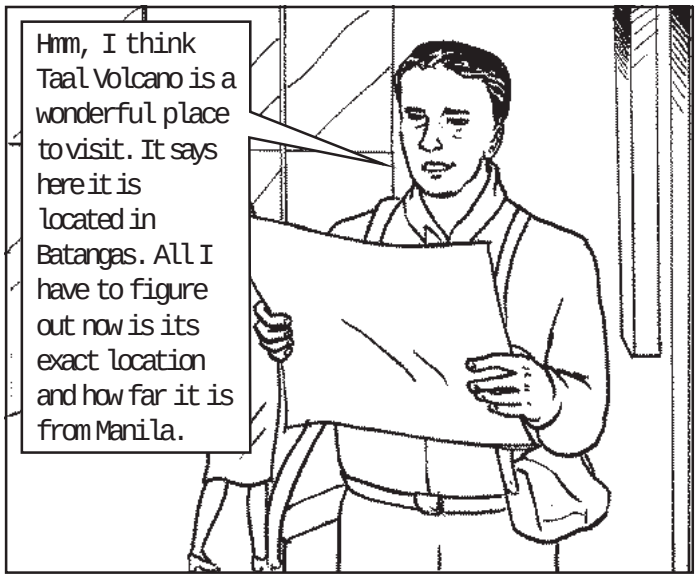
B. What are the four secondary directions used in a map?

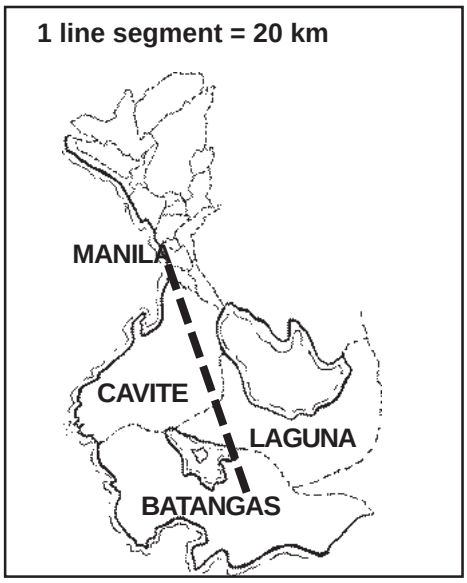
1. _____
2. _____

3. _____

4. _____

C. Read the situation below and answer the questions that follow.



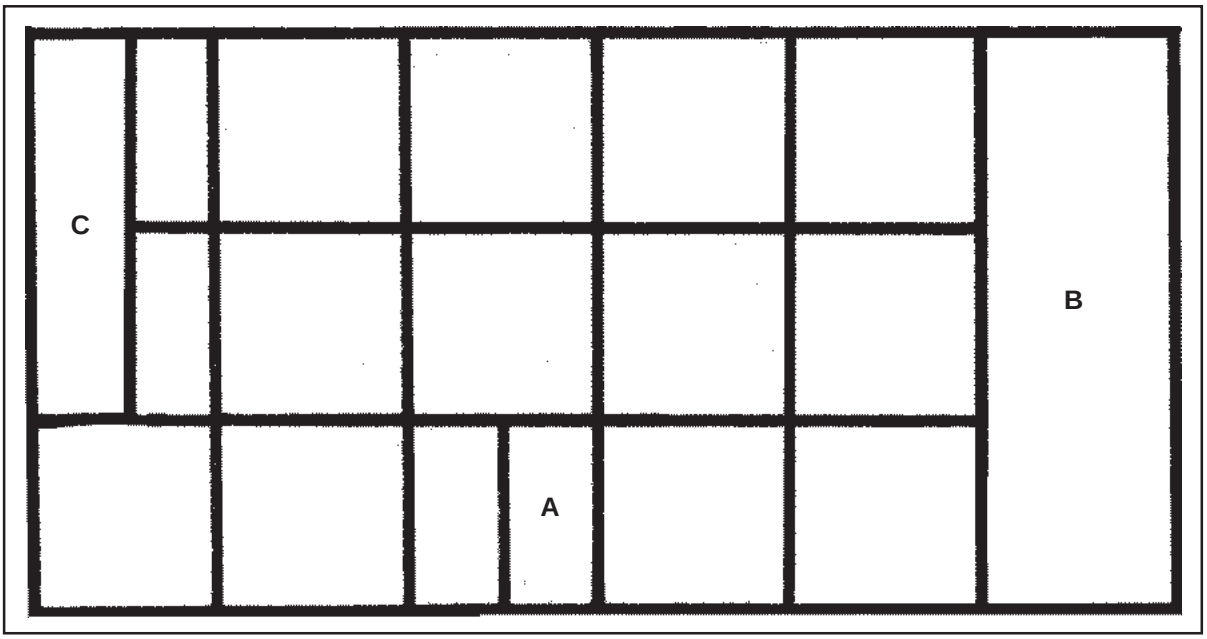


Help the foreigner out by giving him the following information: How can he get to Batangas? What provinces would he pass by? How far is Batangas from Manila?

_____

_____

D. The drawing below shows the floor plan of a particular bedroom. The scale used for it is 1 : 4, that is, 1 inch is to 4 feet.



where:

A is the symbol for the television;

B is the symbol for the bed; and

C is the symbol for the cabinet.

1. What is the actual length and width of the bed?

   Length _____ Width _____

2. What is the actual length and width of the television?

   Length _____ Width _____

3. What is the actual length and width of the cabinet?

   Length _____ Width _____

Well, how was it? Do you think you fared well? Compare your answers with those in the *Answer Key* on page 36 to find out.

If all your answers are correct, very good! You may still study the module to review what you already know. Who knows, you might learn a few more new things as well.

If you got a low score, don't feel bad. This only goes to show that this module is for you. It will help you understand some important concepts that you can apply in your daily life. If you study this module carefully, you will learn the answers to all the items in the test and a lot more! Are you ready?

You may now go to the next page to begin Lesson 1.

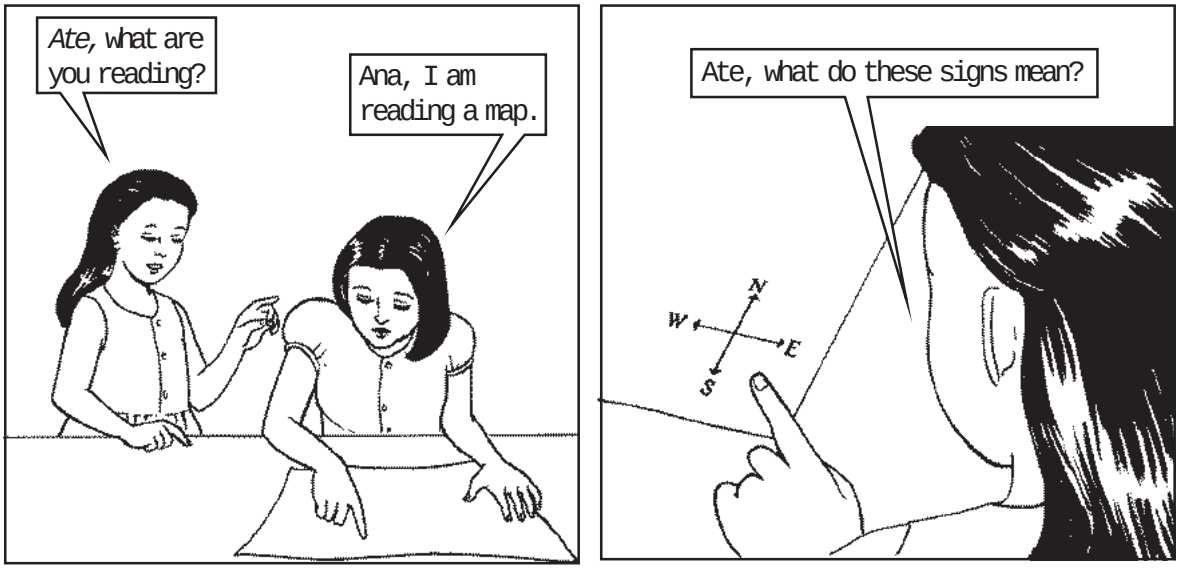
Maps

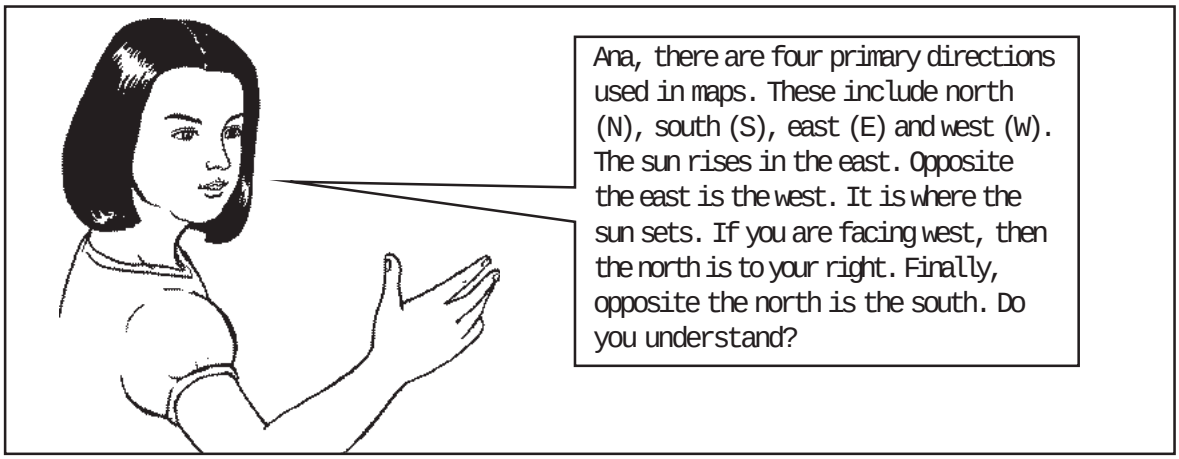
A close friend of yours visits you in your barangay and asks you what places you can recommend her to visit. You then name some of the most beautiful and interesting places in your community. If she asks you how to get to these places, would you be able to give her the right directions so she would not get lost? Do you know how to give directions accurately? If you do not, then this lesson will teach you how. Are you ready to learn? If you are, then read on.

After studying this lesson, you should be able to:

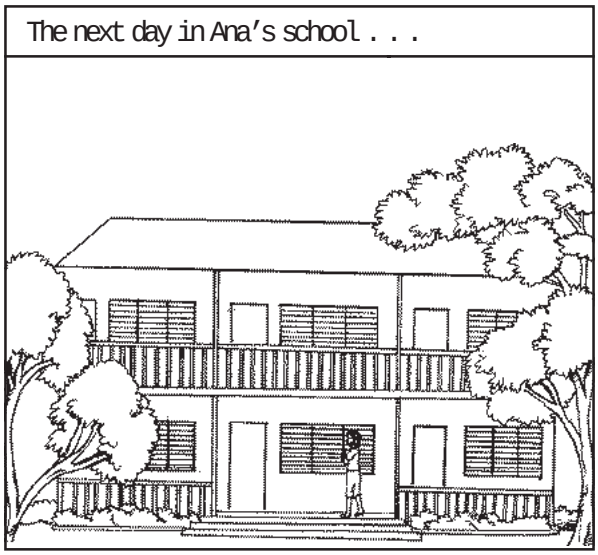
- demonstrate knowledge of directions;
- estimate distances between two objects or geographical locations;
- find locations using a map;
- read and interpret the scale of a map; and
- find the distance between places on a map based on a given scale.

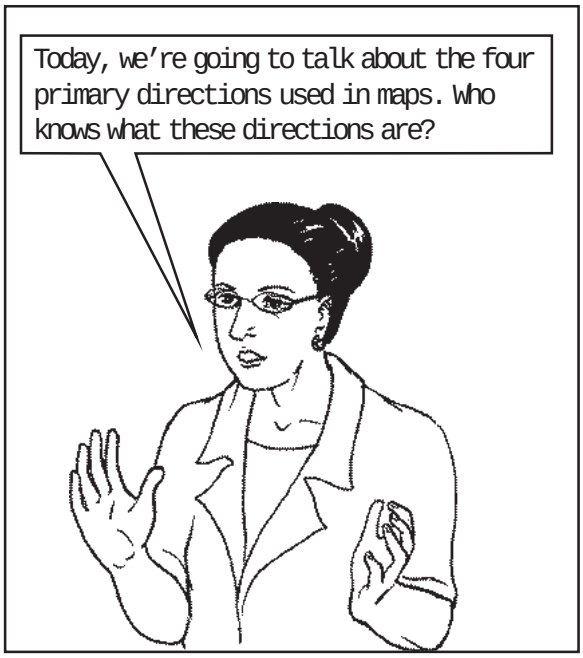
Let's Read

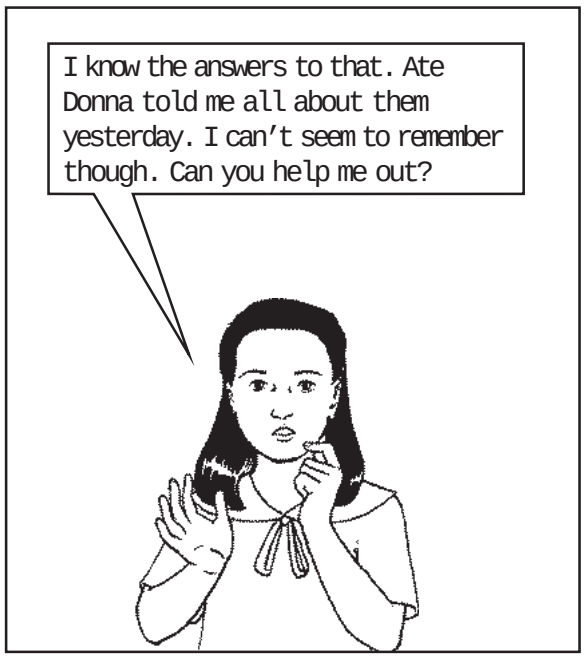



Ana, there are four primary directions used in maps. These include north (N), south (S), east (E) and west (W). The sun rises in the east. Opposite the east is the west. It is where the sun sets. If you are facing west, then the north is to your right. Finally, opposite the north is the south. Do you understand?


Yes, Ate Donna. Thanks! I am going to play with my friends now. Goodbye!
Bye! You take care, okay?


The next day in Ana's school . . .


Today, we're going to talk about the four primary directions used in maps. Who knows what these directions are?


I know the answers to that. Ate Donna told me all about them yesterday. I can't seem to remember though. Can you help me out?

Let's Review

What are the four primary directions used in maps?

_____

_____

Compare your answer with mine below.

The four primary directions used in maps are north (N), south (S), east (E) and west (W). The sun rises in the east. Opposite the east is the west. The sun sets in the west. If you are facing west, you will see the north to your right. Finally, opposite the north is the south.

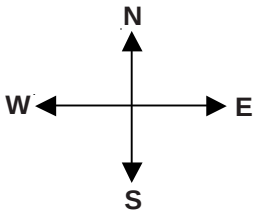
Were you able to get the answers right? If you were, congratulations! If you were not, do not be disappointed. Just review what you have been taught so far before answering the questions you missed again.

Let's Learn

A **map** is a representation of a place that is too large to be drawn using the actual measurements. It is a reduced copy of a place, meaning it has exactly the same shape, only smaller in size. A map is very useful in that it shows the locations of different places such as a school, a church, a police station, a city, a region or even a country. It also shows you the places that border the place you are looking for thereby making going to that place a lot easier.

Let's Try This

Directions on a Map

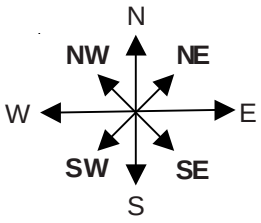


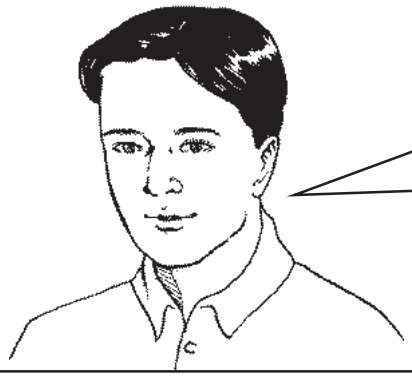
Where do you usually find this symbol on a map? What do you think it is used for? The symbol above is usually placed on one corner of a map to guide the map reader which place is located in the four primary directions indicated by the symbol.

Location		Direction
Left	⟶	west
Right	⟶	_____
Top	⟶	_____
Bottom	⟶	_____

Compare your answers with those in the *Answer Key* on page 38. How well did you do?

Now, look at the illustration below. Do you know what the four new directions are?





Did you know that there are four **secondary directions** used in maps? They are northeast (NE), southeast (SE), northwest (NW) and southwest (SW). The northeast can be found in-between the north and the east. Opposite it is the southwest. The northwest can be found in-between the north and the west. Opposite it is the southeast.

Devices Used to Determine Directions to and Locations of Different Places

Read the story below.

Noel visited his relatives living at the foot of Mt. Makiling one day. Upon his arrival, his aunt warned him not to go to a particular forest in the mountain. This forest was supposed to be haunted by a wicked fairy and the people who entered it always got lost for months. Some of them, they said, never even get a chance to get out. Those who were able to make it out, on the other hand, said that one can get the best-tasting mangoes at the heart of the enchanted forest.

Noel liked mangoes very much and he became very curious about the enchanted forest too. One day, he got up before the sun rose and packed some things. He then headed toward the haunted forest.

He found the mango trees without much difficulty. True enough, their fruits were the best-tasting mangoes he had ever eaten. He ate some fruits for a while then put some more in his bag. Then he headed back home.

A few hours later, after much walking, Noel found himself at the same spot where the mango trees were. He was beginning to worry. He rested for a while and tried to figure a way out of the enchanted forest. After some thinking, he got up and walked in a direction he thought led out of the forest.

After a few more hours, he stopped at the same spot where the mango trees were. Exhausted and hungry, he sat down and ate some more mangoes. Then he remembered that he brought something that could help him get out of the forest.

Let's Think About This

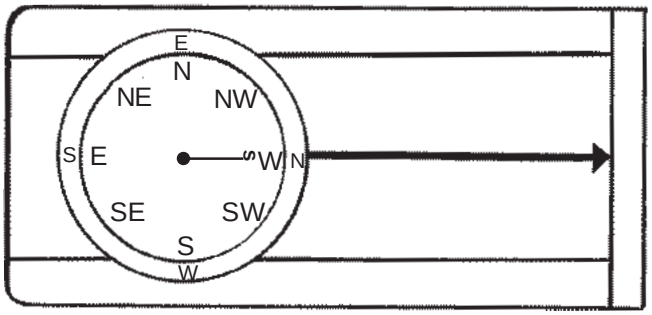
What object do you think Noel brought that could help him find his way out of the forest?

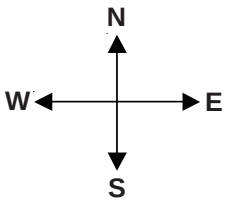
_____

Continue reading Noel's story to find out the answer.

Let's Read

Noel got the **compass** from his travel kit and checked his location. He knew that his aunt's house was located in the south. He knew that the needle of a compass always points to the earth's magnetic north pole. When Noel looked at his compass, the needle was pointing to the west. This meant he was facing east.

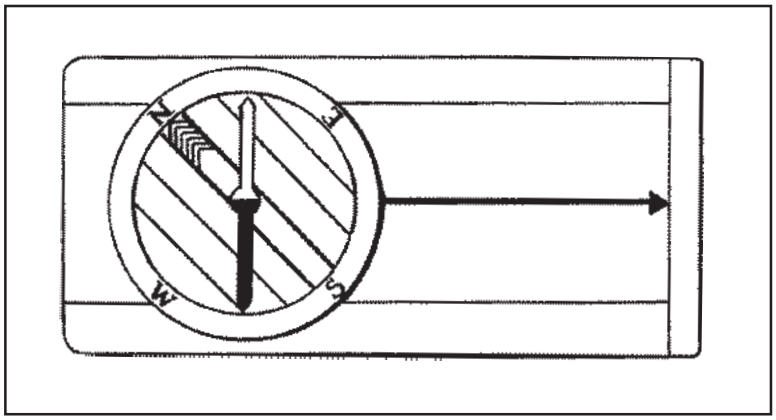




Noel turned clockwise (right) and walked toward what he knew to be the south. After a while, he was able to get out of the forest without much difficulty by following the directions indicated by the compass. When Noel arrived at his aunt's house, everyone wanted to know how he got out of the enchanted forest easily and he happily showed them his compass.

Let's Learn

One device often used to determine direction and location is the compass. Have you ever seen a compass? If you haven't, just look at the picture below to see how it looks.



Let's Try This

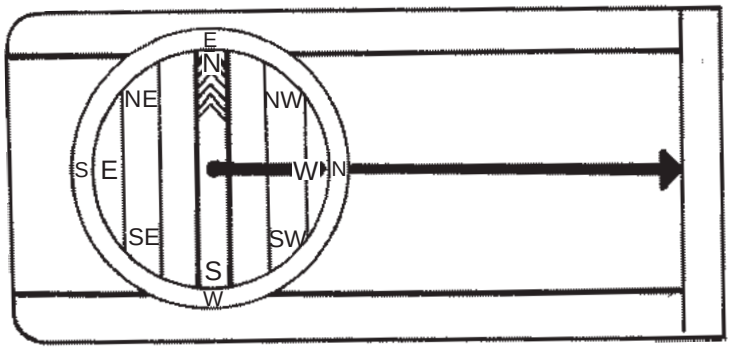
Imagine yourself being lost in the enchanted forest. If you came from the east, to which direction should you walk so you can go back to where you came from. Fill in the blanks below.

1. **W** (west) = forward
2. **E** (east) = _____
3. **S** (south) = _____
4. **N** (north) = _____

Compare your answers with those in the *Answer Key* on page 37. How well did you do?

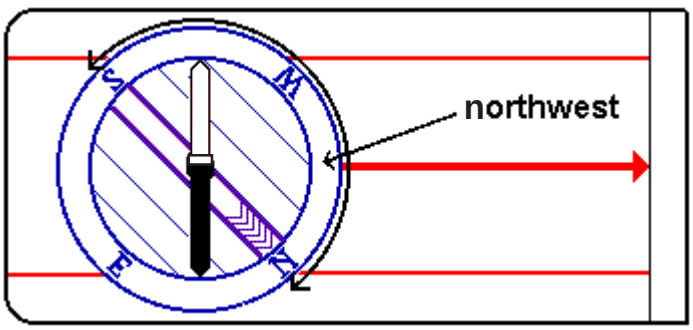
Let's Learn

The needle of a compass always points to the north. That is the most important thing you have to know when using a compass. Do you see the white and black arrows on it? These are collectively called the **compass needle.** Always keep in mind that the white arrow always points toward the earth's magnetic north pole.

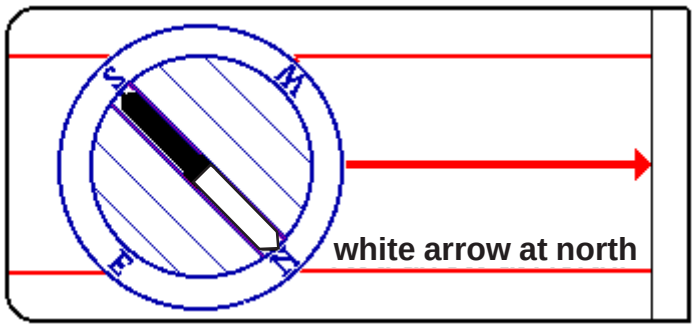


But what if you want to go to a different direction? Well, there is this turnable thing on your compass called the **compass housing.** It contains the four primary directions—N, S, E and W. If you want to go to any direction between any two of these, for example, you want to go northwest. You should then follow these steps:

1. Find where on the compass housing the northwest is. Then turn the housing so that northwest on it points exactly where the large direction of the travel arrow meets the housing.



2. Hold the compass in your hand, making sure the compass needle can turn. Then turn yourself, your hand and the entire compass while making sure the compass housing doesn't turn. Do this until the compass needle is aligned with the lines inside the compass housing.



3. It is extremely important that the white, north part of the compass needle, points to the north in the compass housing. If the black, south part of the needle, points to the north, you would walk off in the exact opposite direction. So, always take a second look to make sure you did everything right.

4. Make sure too that when you use a compass, you are not carrying anything magnetic that might disturb the compass needle. Keep in mind that even a staple wire on your map might cause a problem.

5. Once you're sure you got the direction right, walk off toward the direction the travel arrow is pointing to. To avoid getting off course, make sure you look at the compass every now and then, say, every hundred meters at least.

Now, you know how a compass works. This information will be very useful to you if you got lost like Noel did in the story. If you had a map to tell you exactly where you should go, then your work would be a lot easier since you wouldn't just be relying on your intuition.

Let's Review

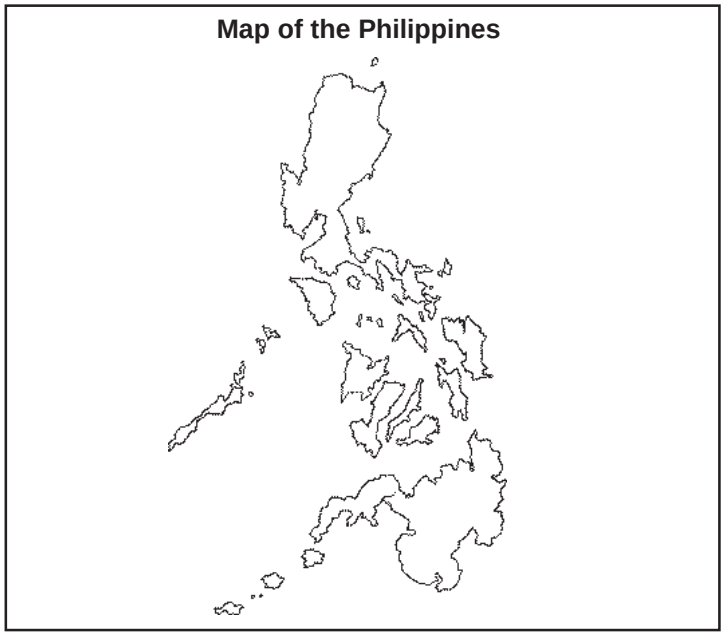
Match the items in Column A with those in Column B. Write the letters of the corresponding answers only in the blanks provided.

Column A	**Column B**
Four primary directions	A. Compass
1. _____	B. North
2. _____	C. Northeast
3. _____	D. South
4. _____	E. Southeast
Four secondary directions	F. West
5. _____	G. Northwest
6. _____	H. East
7. _____	I. Southwest
8. _____	
Device used to determine direction and location	
9. _____	

Compare your answers with those in the *Answer Key* on page 37. How well did you do?

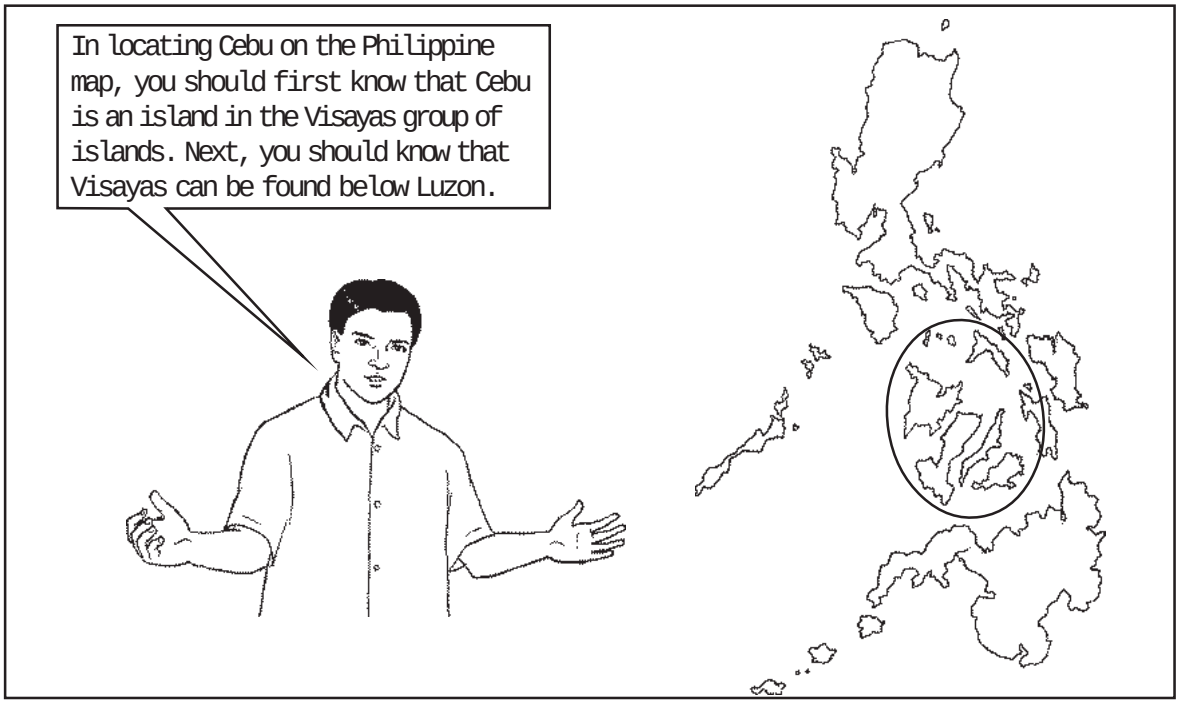
Let's Learn

Locating Places on a Map

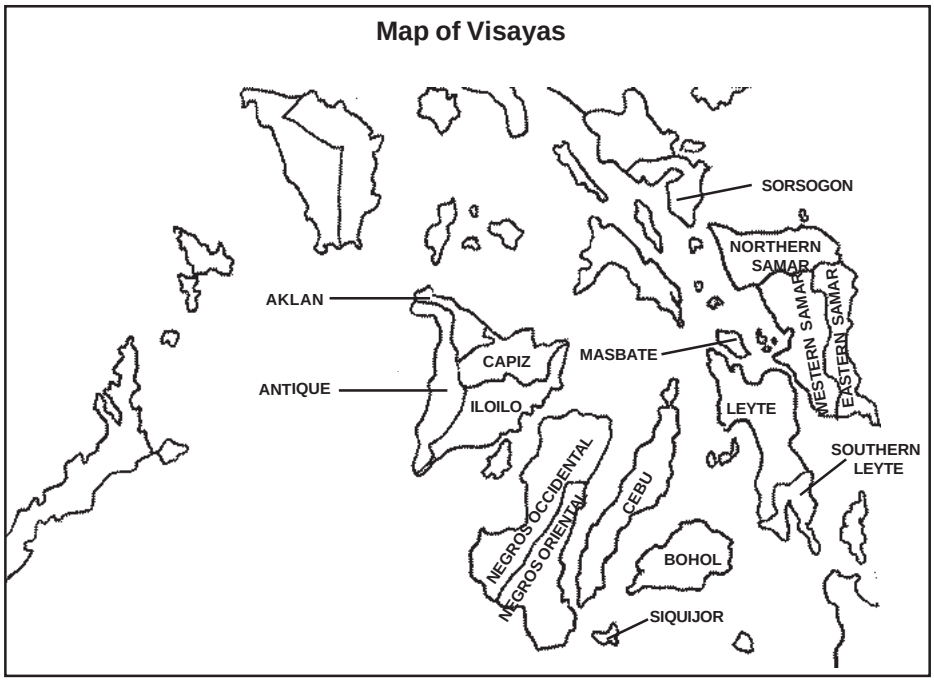


Would you like to know how to locate a place on a map? It's easy! Let's do it together. Look at the map of the Philippines on the previous page. Locate Cebu by taking the following steps.

STEP 1 Determine the larger area where Cebu may be found. In which major island group can it be found? Identify that area on the map below.



STEP 2 Focus on the group of islands and find the place by going over each of the provinces in it.

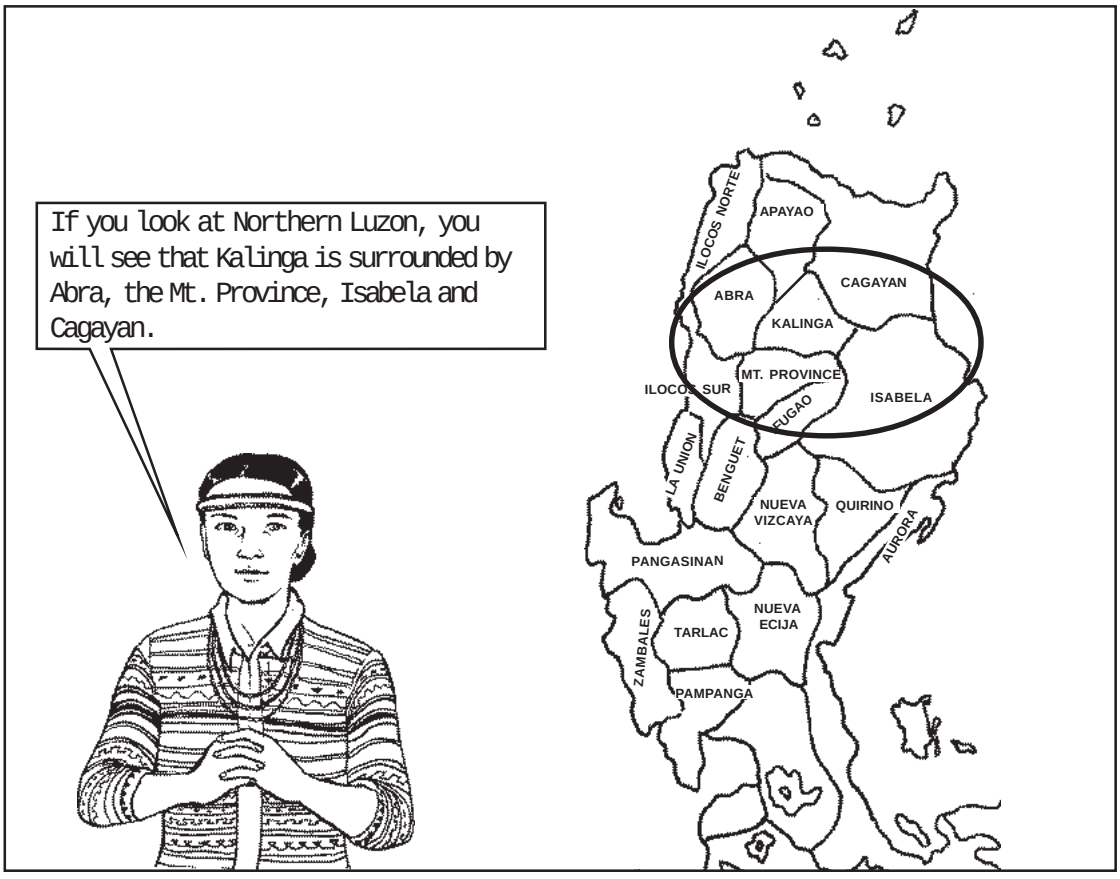


It's easy, isn't it? Now, try to locate other places on the map on your own.

Let's see how fast you can locate Kalinga on the Philippine map below.

STEP 1 Determine to which major island group Kalinga belongs. Locate that area on the map.

STEP 2 Focus on this group of islands and find the exact location of the place by looking at each province carefully.



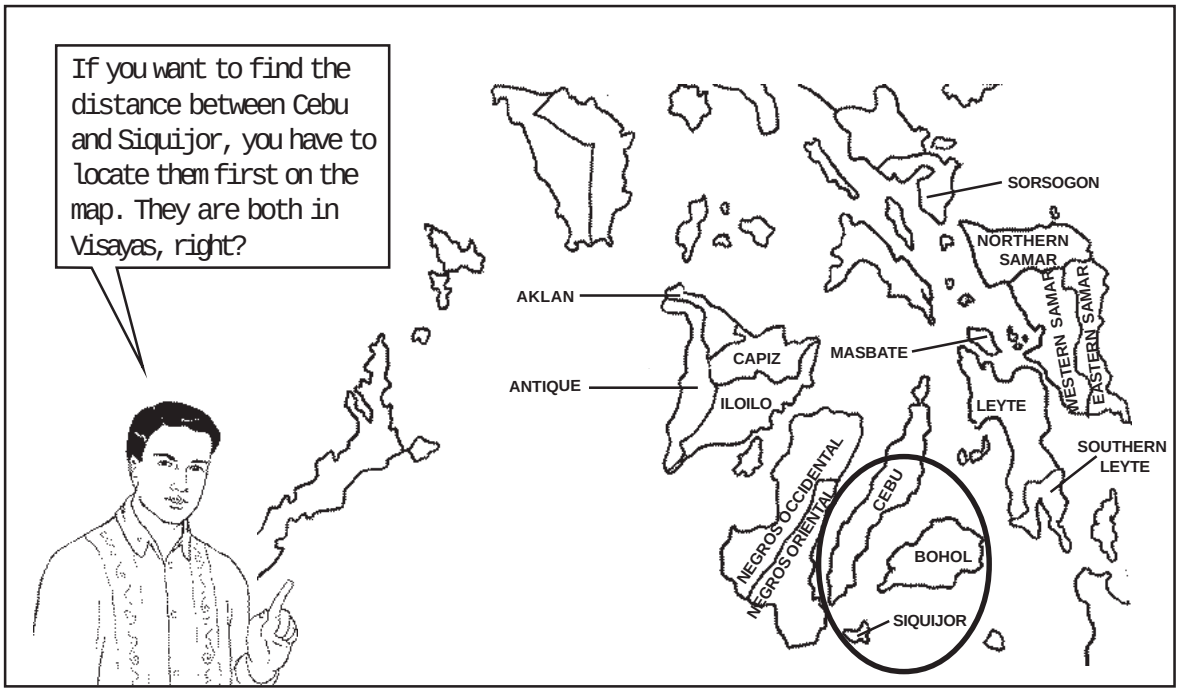
Were you able to find Kalinga on the given map? If you were, that's very good. That means you understood the lesson so far. If you didn't, that's okay too. Just keep trying and keep in mind that locating places on a map just takes practice.

Let's Try This

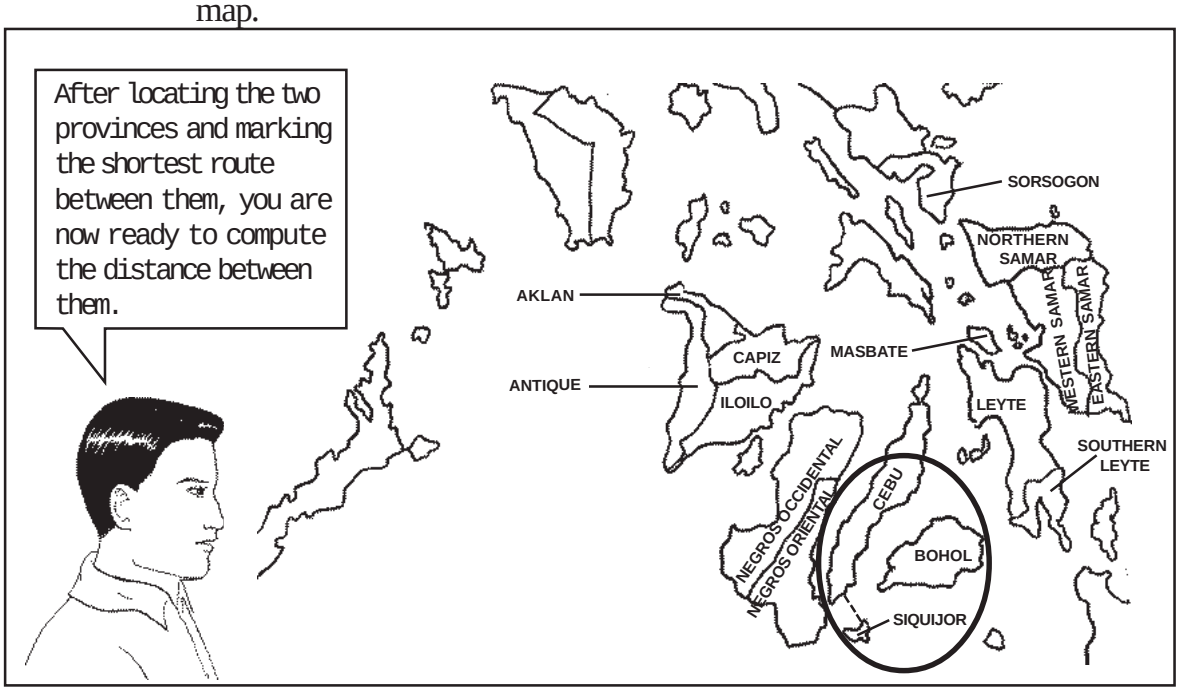
Did you know that finding distances between two places is just as easy as locating them on a map? Let us try doing this together by taking the following steps.

Let us, for example, find the distance between Cebu and Siquijor.

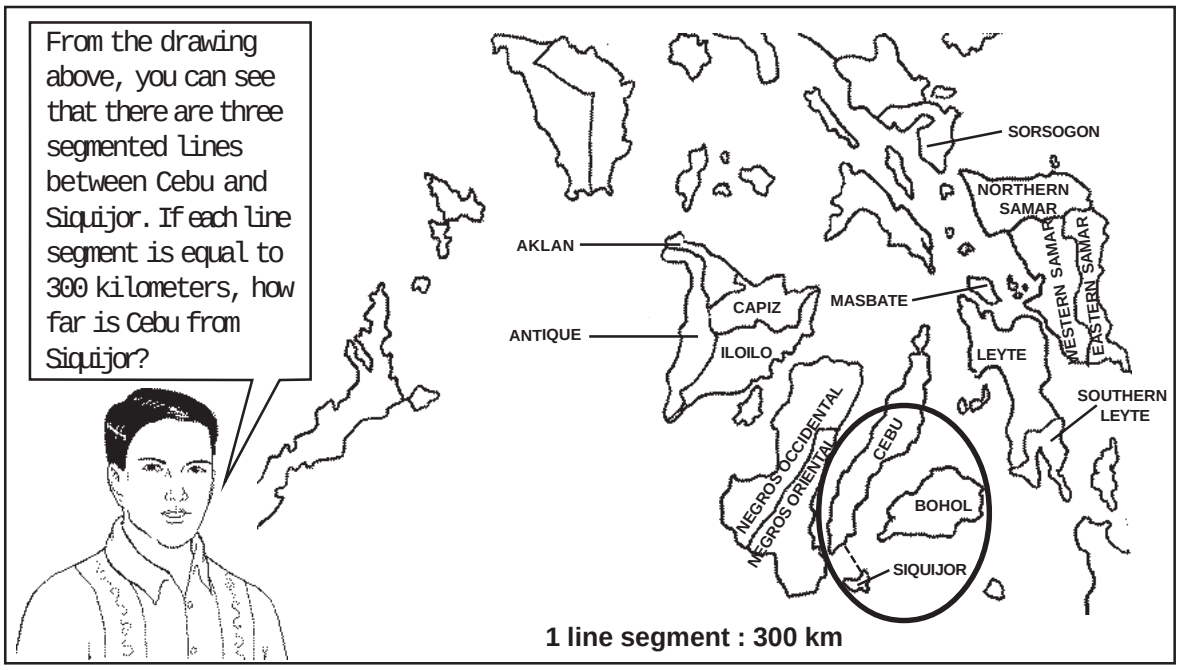
STEP 1 Find the exact locations of the two places on the map.



STEP 2 Find the shortest route between the two places and mark this on the map.

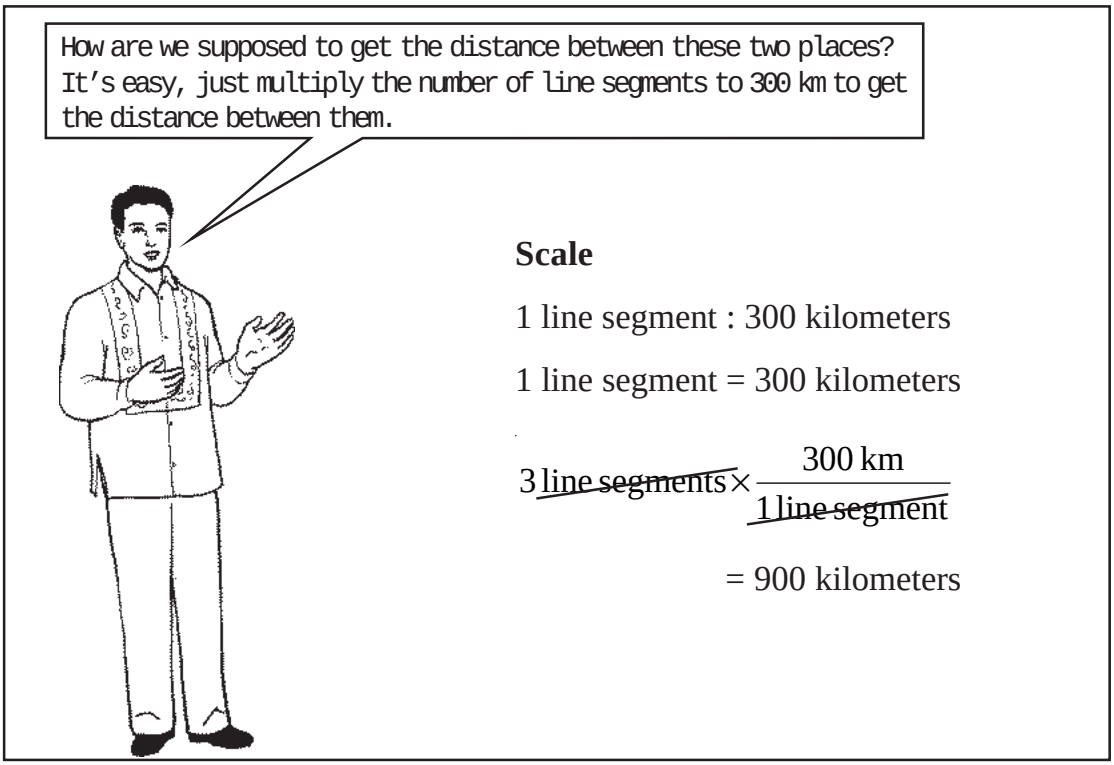


STEP 3 Find out the **scale** used for the map or the representation of the distances between places. This is usually found at the bottom of the map. For example, find out if 1 inch on the map represents 3 miles or if 1 centimeter on it represents 1 kilometer and so on. Sometimes, the total distances between places are indicated on the map.



Now, estimate the distance between Cebu and Siquijor. How will you do this? Take a look at the next step below.

STEP 4 Using the given scale, find the total distance between the two places.



Scale

1 line segment : 300 kilometers

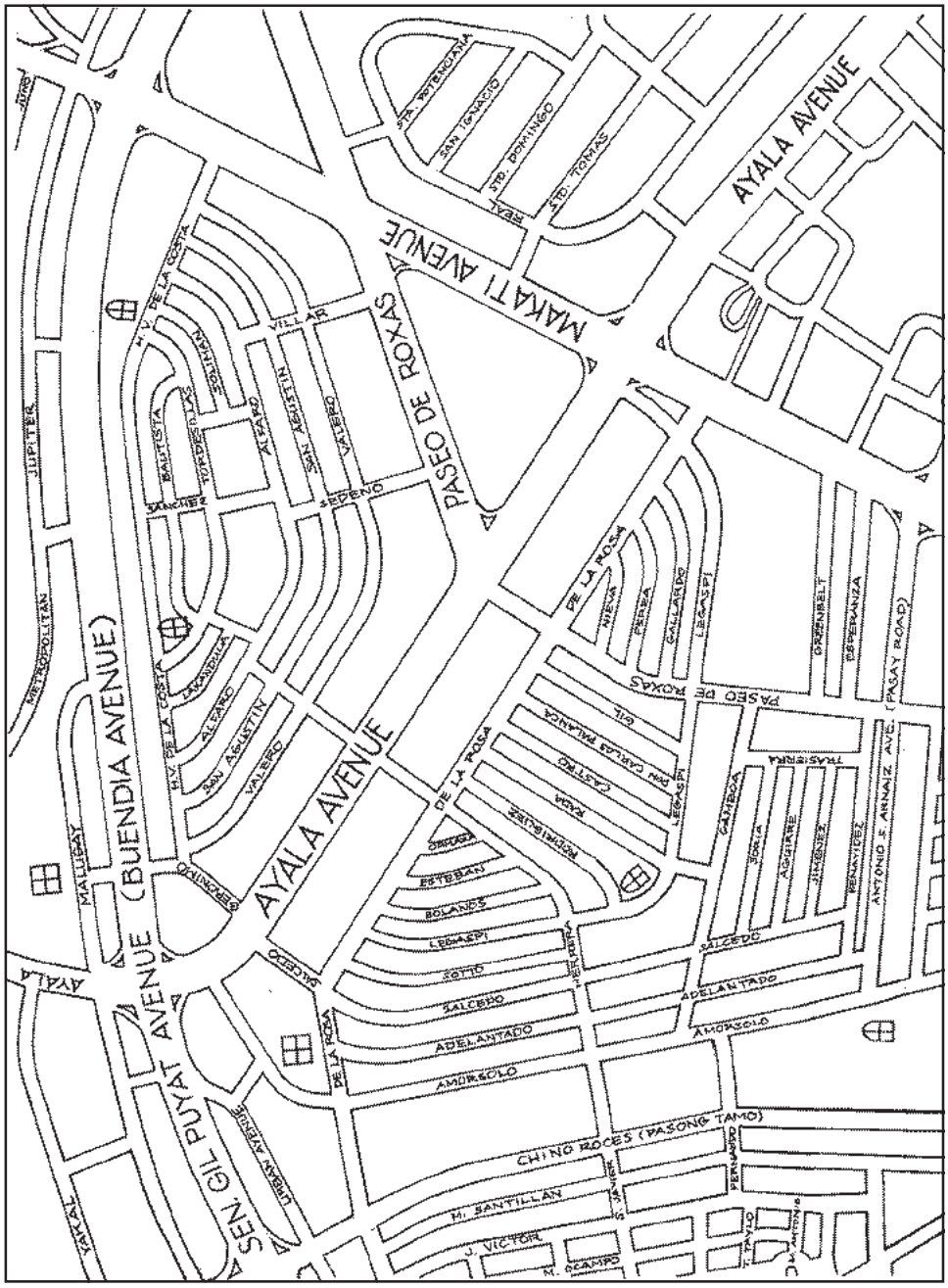
1 line segment = 300 kilometers

$$3\,\cancel{\text{line segments}} \times \frac{300\text{ km}}{1\,\cancel{\text{line segment}}}$$

= 900 kilometers

Let's Think About This

Shown below is a map of Makati City showing the different major roads, secondary roads and landmarks in it. Study it carefully. Note the legends and symbols used in it. Look at the scale.



LEGEND

- Hospital
- Church
- Major road
- Secondary road

Do you think the symbols used in the map were appropriate? Was the scale used correct? Can you locate any place you would be asked to using this map? Why/Why not?

Let's Learn

Drawing city maps like the one you just saw is simple. You just have to follow these steps:

STEP 1 Know the area or place to be drawn.

STEP 2 Identify all the parts (roads, landmarks, etc.) of the area to be drawn. You may wish to represent these parts using symbols. For example, if you want to draw a church, you may use > to symbolize it.

STEP 3 Determine the distances between places or landmarks in the area. Use a representation of the measurements in scaling the area, place, road, etc. to be drawn. For example, you may wish to use 1 inch to represent 30 miles or 1 centimeter to represent 10 kilometers and so on.

STEP 4 Draw the area or place to scale, that is, using the scale you have decided upon earlier.

STEP 5 Review your drawing. See if it is an almost accurate representation of the area or place you decided to draw.

Let's Try This

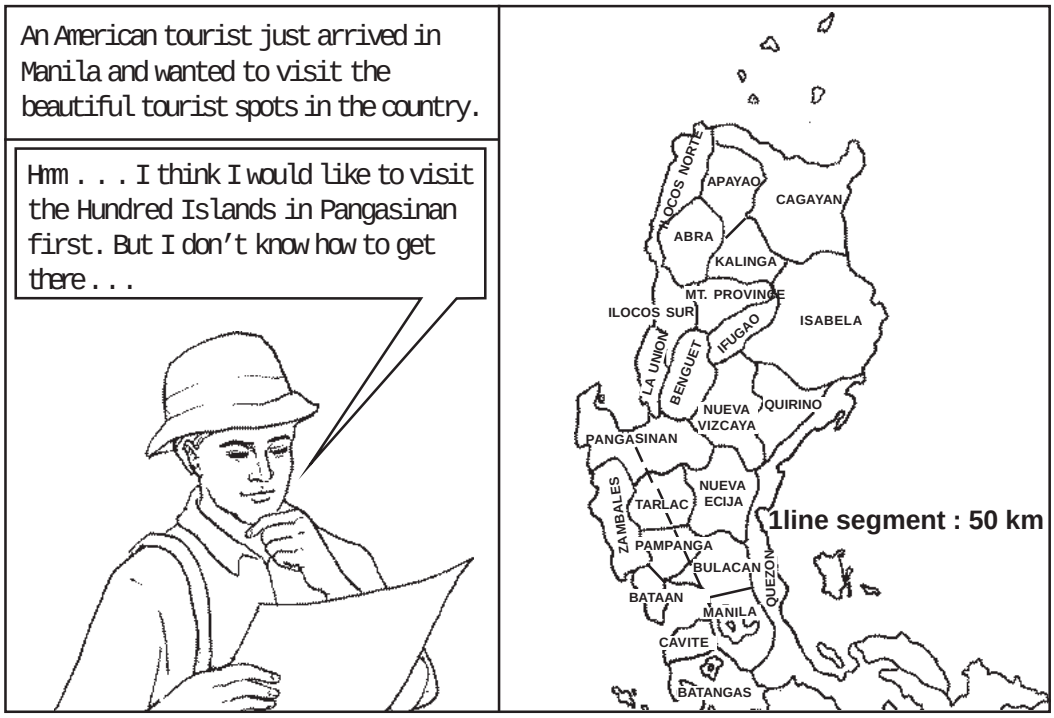
Draw a simple barangay map to scale. Be sure to indicate the meanings of the legend and symbols as well as the scale you used. Draw your map in the box below and indicate the legend and symbols you used in the smaller box on the next page.

Legend or Symbols

Compare your work with the sample map in the *Answer Key* on pages 37 and 38. How well did you do?

Let's See What You Have Learned

A. Study the situation below and answer the questions that follow.



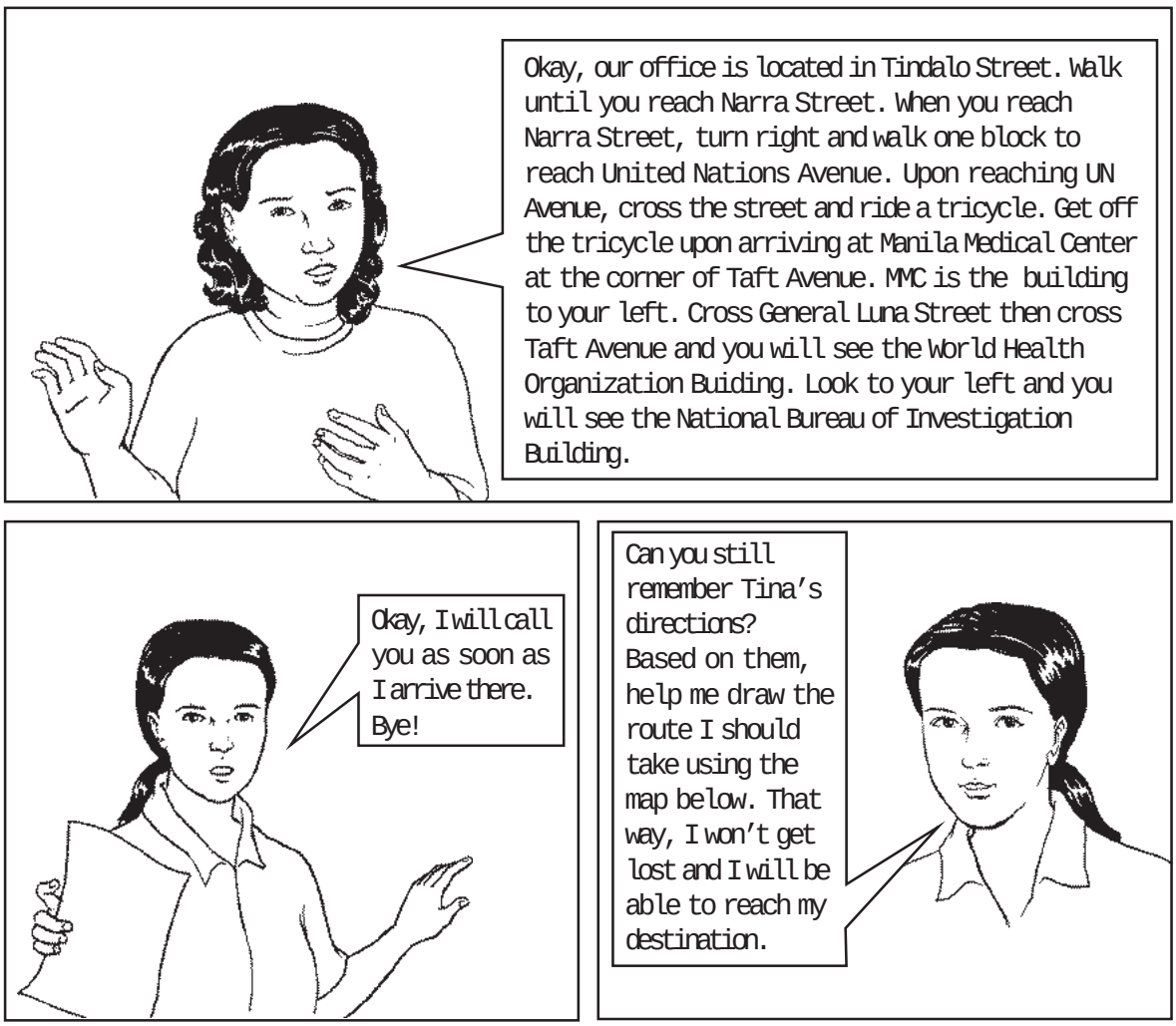
Try to help the foreigner by answering these questions: Where is Pangasinan located? How far is it from Manila?

_____

_____

_____

B. Read the comic strip below and answer the questions that follow.


Okay, our office is located in Tindalo Street. Walk until you reach Narra Street. When you reach Narra Street, turn right and walk one block to reach United Nations Avenue. Upon reaching UN Avenue, cross the street and ride a tricycle. Get off the tricycle upon arriving at Manila Medical Center at the corner of Taft Avenue. MMC is the building to your left. Cross General Luna Street then cross Taft Avenue and you will see the World Health Organization Buiding. Look to your left and you will see the National Bureau of Investigation Building.
Okay, I will call you as soon as I arrive there. Bye!
Can you still remember Tina's directions? Based on them, help me draw the route I should take using the map below. That way, I won't get lost and I will be able to reach my destination.

Map to NBI


UNITED NATIONS AVENUE
TINDALO
NARRA
MANILA MEDICAL CENTER
GENERAL LUNA STREET
TAFT AVENUE
WORLD HEALTH ORGANIZATION BUILDING
NATIONAL BUREAU OF INVESTIGATION BUILDING

Compare your answers with those in the *Answer Key* on page 38. Did you get all the correct answers? If you did, that's very good. You may then proceed to Lesson 2. If you did not, that's okay too. Just review the parts of the lesson you didn't understand very well before going to Lesson 2.

Let's Remember

- The four primary directions used in maps are north, south, east and west.
- The four secondary directions used in maps are northeast, northwest, southeast and southwest.
- A compass is a device used to determine the directions to and location of a certain place.
- The following are the steps one should take in locating places on a map:
    1. Determine the larger area in which the place you want to find is located, e.g., Cebu in the Visayas, Kalinga in Luzon and Davao in Mindanao.
    2. Focus on that larger area and find the place by going over the map carefully.
- One should take the following steps in finding the distance between two places:
    1. Find the exact location of the two places on the map.
    2. Find the shortest distance between these two places.
    3. Know the scale used in the map, for example, 6 cm : 100 km.
    4. Using the given scale, find the total distance between the two places.
- One should take the following steps in drawing maps:
    1. Know the area or place to be drawn.
    2. Identify the parts (roads, landmarks, etc.) of the area or place to be drawn.
    3. Determine the distances between particular places or landmarks in the area or place.
    4. Draw the area or place to scale.
    5. Review your drawing. See if it is similar to the original area or place you wanted to draw in the first place. Do not forget to write the scale you used.

Scales

You want to build a house. You then had an architect friend of yours make a plan of the house you want to be built. How will you interpret the house plan? You will need to know how to interpret scales so that you can tell how big each of its parts are. Reading this lesson will help you do just that.

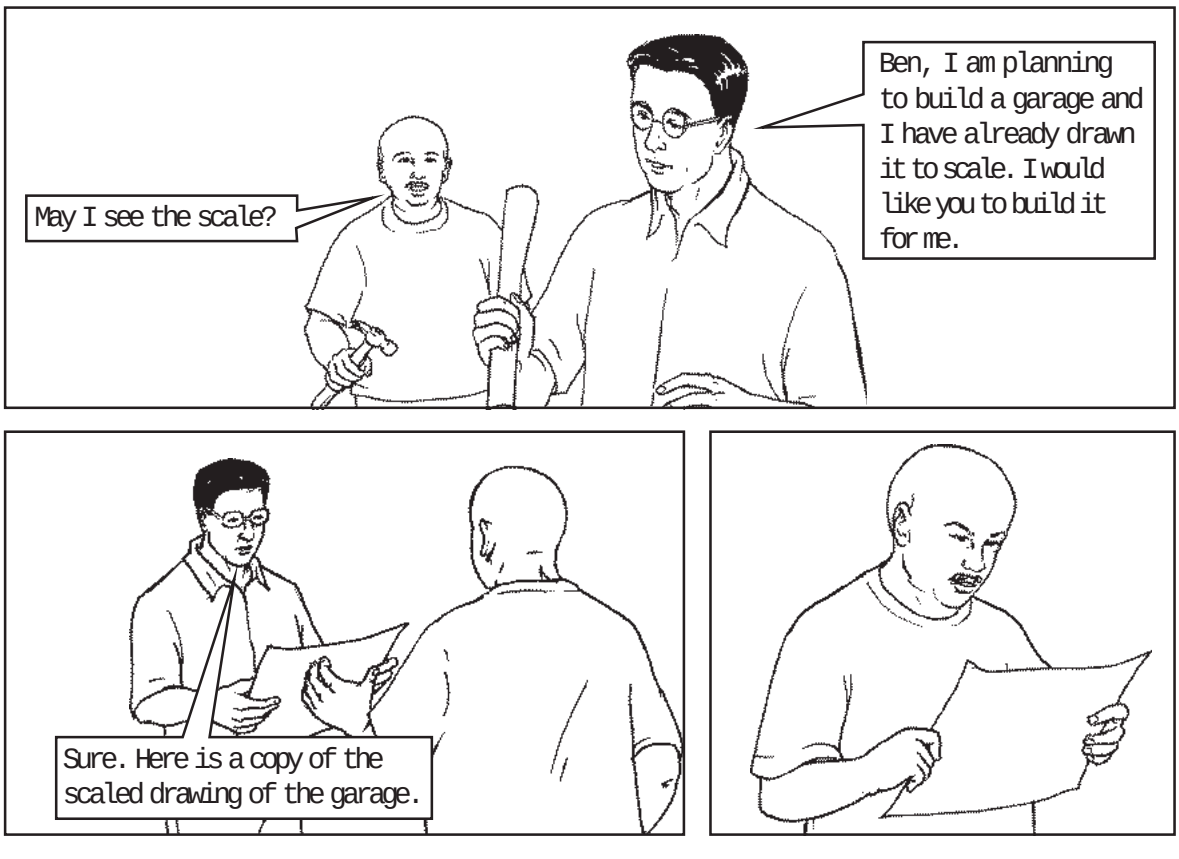
In Lesson 1, you learned how important a scale is in a map. You learned that a scale helps you determine the actual size of a certain place or its distance from another place.

After studying this lesson, you should be able to:

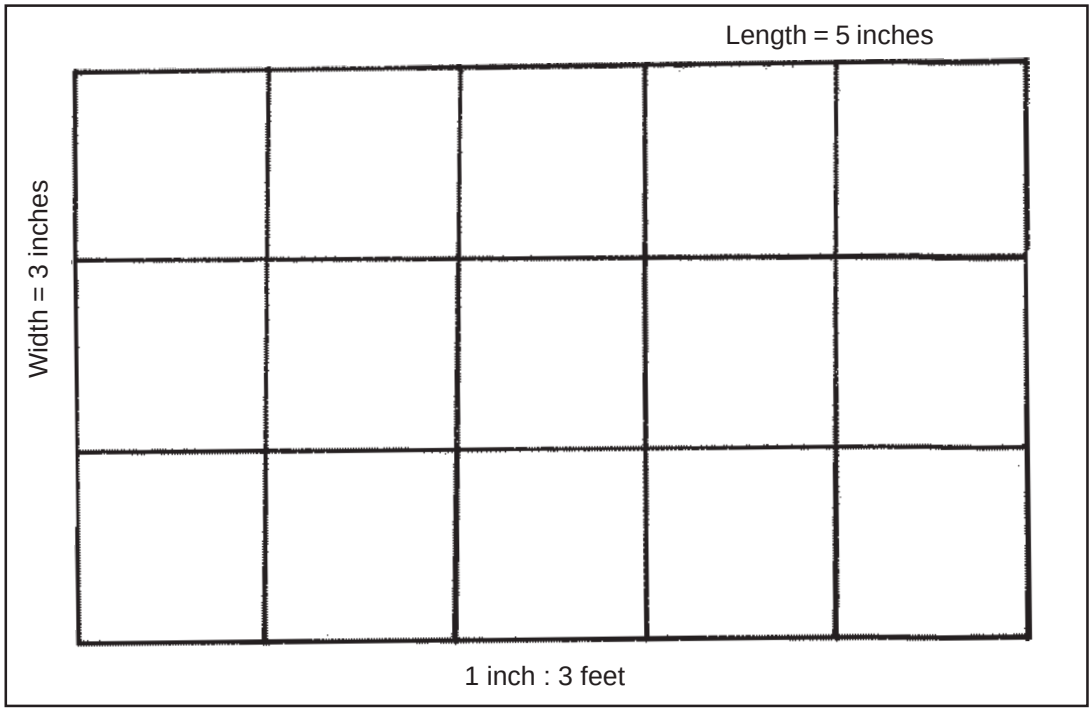
- interpret a plan drawn to scale;
- draw objects to scale; and
- enlarge or reduce scale drawings of objects and things.

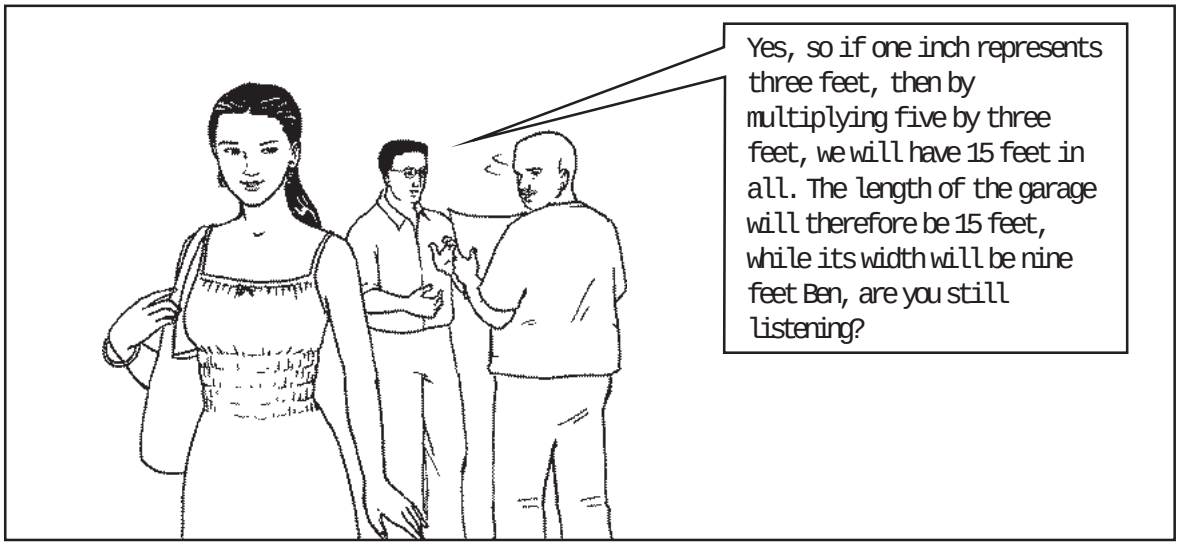
Let's Study and Analyze

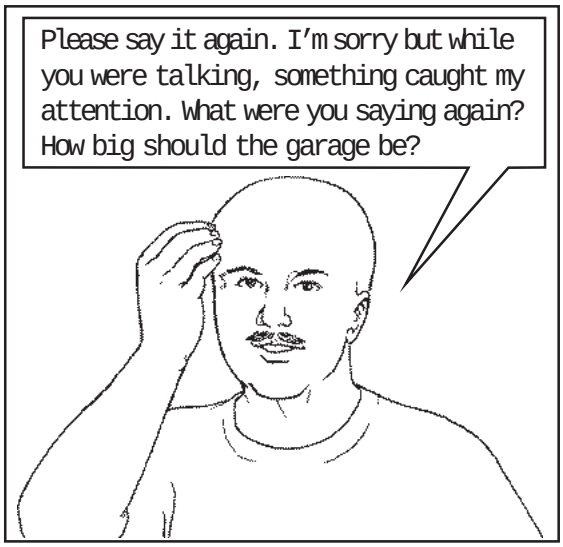
An engineer who plans to build a garage talks to a carpenter about it.

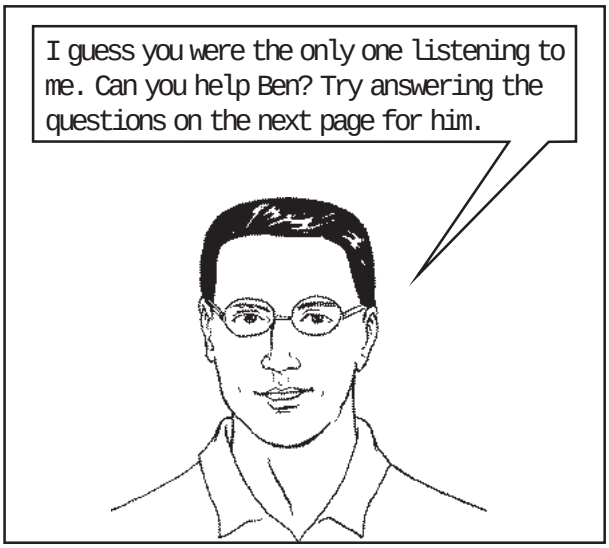


In the scale below, 1 inch represents 3 feet.









Let's Review

Answer the following questions briefly.

1. What is the actual length of the garage? Show your solution.

   _____

   _____

   _____

2. What is the actual width of the garage? Show your solution.

   _____

   _____

   _____

Compare your answers with those in the *Answer Key* on page 39. Did you get the right answers? If you did, congratulations! You are on the right track. If you did not, do not be disappointed. Review the steps and try answering the questions again. Good luck!

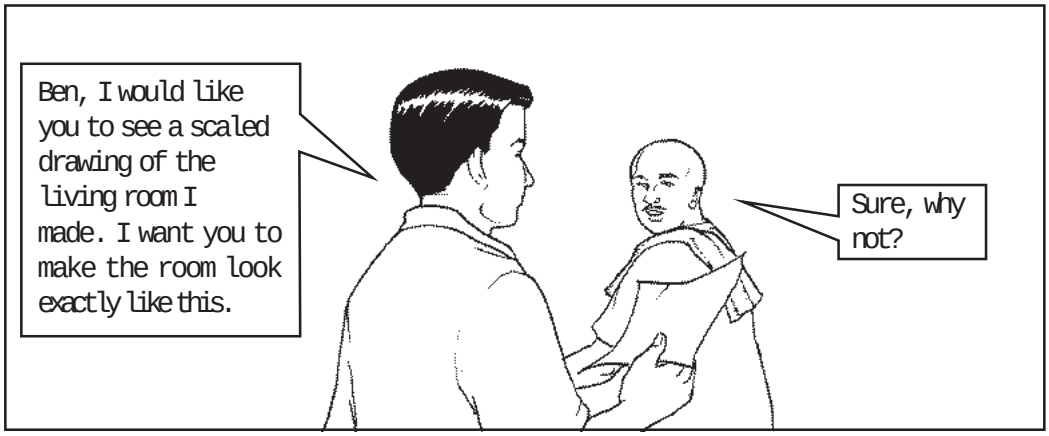
Let's Learn

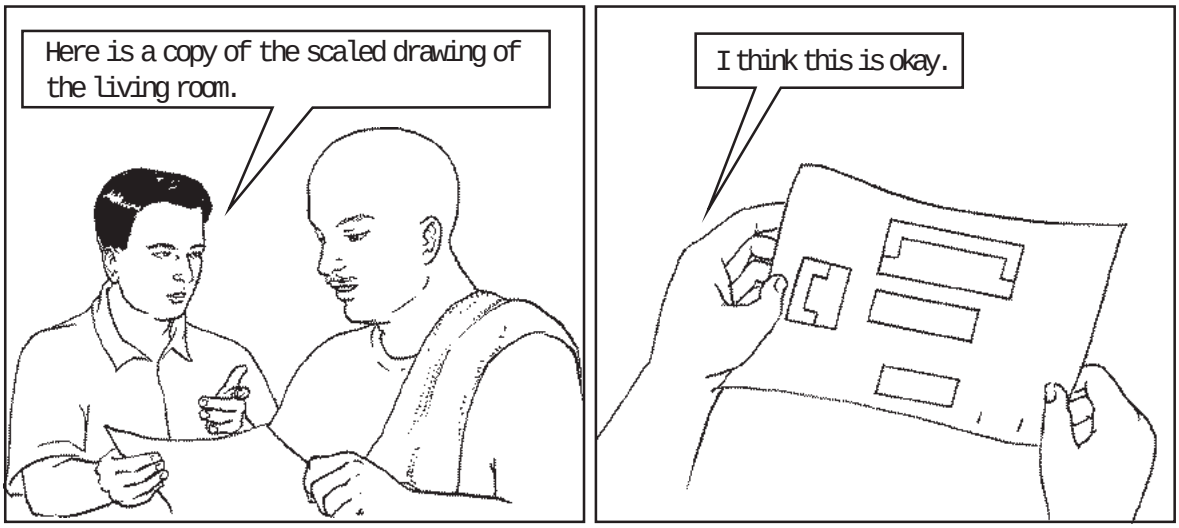
Scaled drawings are used to represent things that are either too large or too small to be drawn to actual size.

A scaled drawing is either a reduced or an enlarged copy of an object or a place. A **reduced copy** has the same proportion (or relative size) as the original but is smaller in size. On the other hand, an **enlarged copy** has the same proportion (or relative size) but is larger in size.

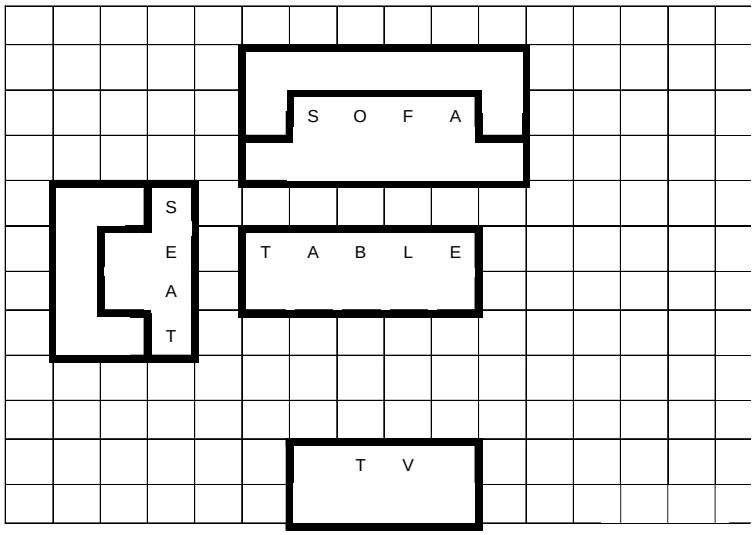
To further understand and interpret scales, read the situation below.

An interior designer of a house made a scaled drawing of the finished living room. He then talked about it with Ben, the carpenter.

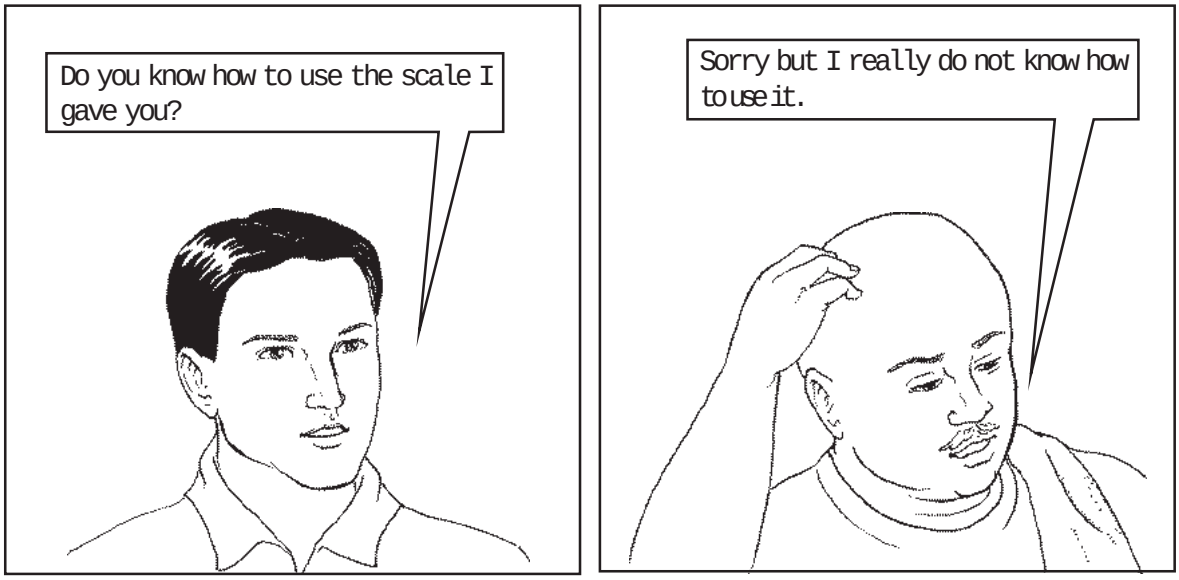


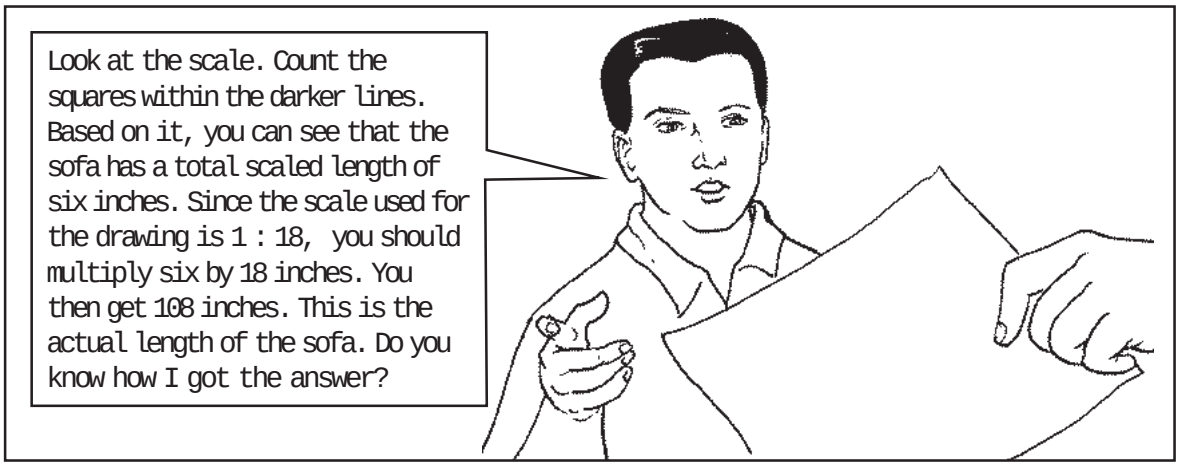


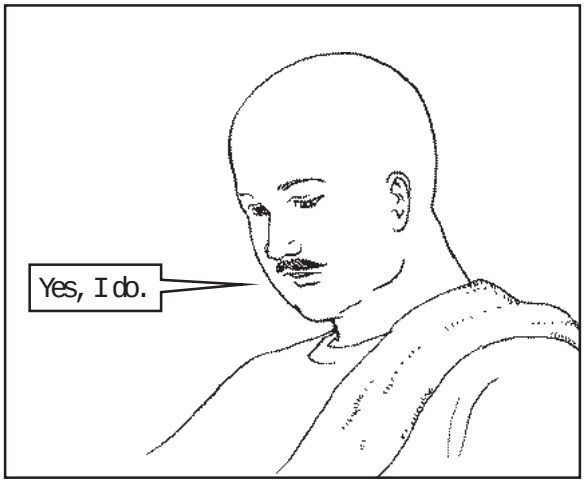
In the scale, 18 in. of the actual size is represented by 1 inch. Note how this scale is indicated below:

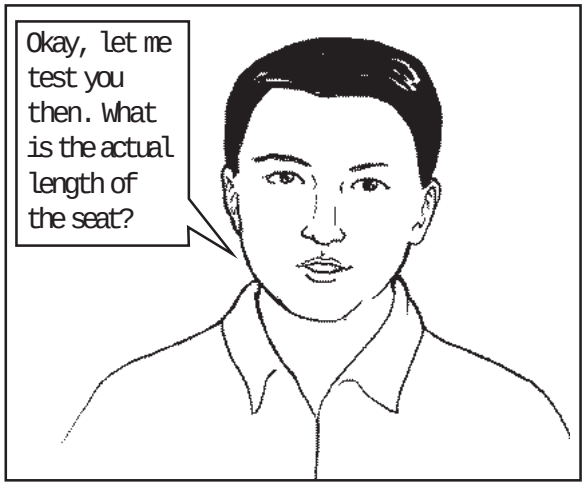


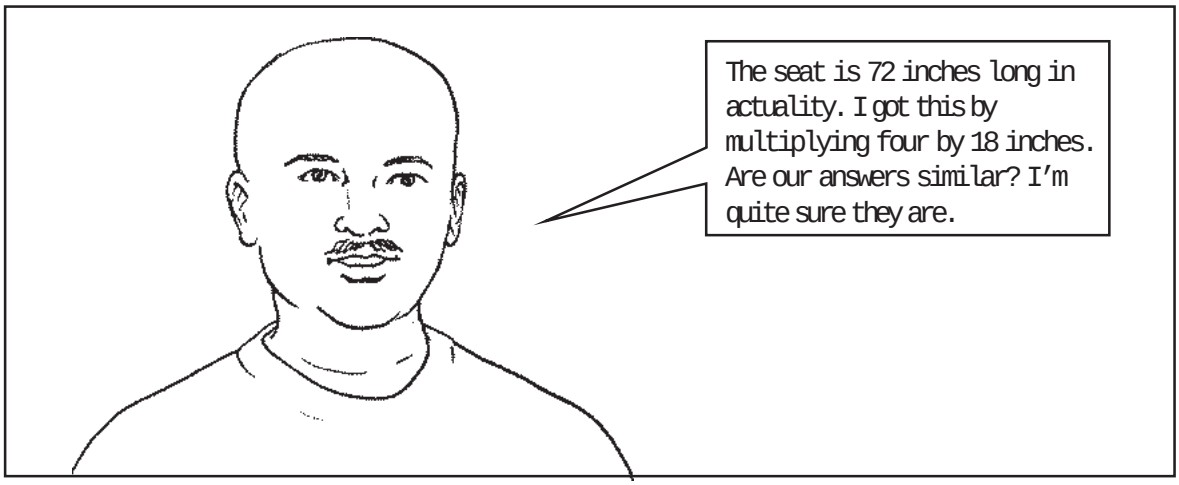
1inch : 18 inches




Look at the scale. Count the squares within the darker lines. Based on it, you can see that the sofa has a total scaled length of six inches. Since the scale used for the drawing is 1 : 18, you should multiply six by 18 inches. You then get 108 inches. This is the actual length of the sofa. Do you know how I got the answer?


Yes, I do.


Okay, let me test you then. What is the actual length of the seat?


The seat is 72 inches long in actuality. I got this by multiplying four by 18 inches. Are our answers similar? I'm quite sure they are.

Let's Try This

To further understand how to draw objects or places using a scale, look at the two examples given below. Study the step-by-step solutions I presented.

PROBLEM # 1

Mang Andoy built a bathroom. The actual length of the bathroom is 12 ft. while its width is 6 ft. If 3 ft. is represented by 1 in., make a scaled drawing of the bathroom.

SOLUTION

STEP 1 The problem asks that you make a reduced drawing of the bathroom.

STEP 2 Imagine the objects that should be drawn as shown from the top and know the exact measurements of all of its parts. List down the given measurements: Actual length of the bathroom = 12 ft.; actual width of the bathroom = 6 ft.

STEP 3 Determine the scale you will use for your drawing as in: 1 in. : 3 ft.

STEP 4 Determine the actual measurements of the objects to be drawn. Then represent these measurements using the given scale.

- Solve for the length of the bathroom as in:

  Actual length of the bathroom = 12 ft.

  Scale : 1 in. : 3 ft. or $\frac{1 \text{ in.}}{3 \text{ ft.}}$

  Solution: $12 \cancel{\text{ft.}} \times \frac{1 \text{ in.}}{3 \cancel{\text{ft.}}} = \frac{12 \text{ in.}}{3}$

  $= 4$ in.

  The scaled length of the bathroom is 4 in.

- Solve for the width of the bathroom as in:

  Actual width of the bathroom = 6 ft.

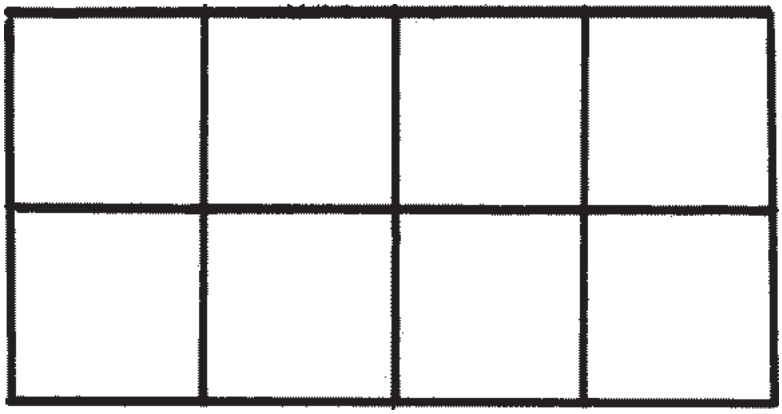
  Scale : 1 in. : 3 ft. or $\frac{1 \text{ in.}}{3 \text{ ft.}}$

  Solution: $6 \cancel{\text{ft.}} \times \frac{1 \text{ in.}}{3 \cancel{\text{ft.}}} = \frac{6 \text{ in.}}{3}$

  $= 2$ in.

  The scaled width of the bathroom is 2 in.

STEP 5 Draw the object to scale. Do not forget to indicate the scale you used.



1 inch : 3 feet

PROBLEM # 2

A photograph is 3 in. wide and 5 in. long. The photograph is enlarged to a width of 9 in. What then is the length of the enlarged photograph? What scale was used?

SOLUTION

STEP 1 Decide whether the object was reduced or enlarged. In this case, for example, the photograph was enlarged.

STEP 2 Imagine seeing the object from the top and know the exact measurements of its parts. List down the given measurements: Width of the original photograph = 3 in., while its length = 5 in. The width of the enlarged photograph = 9 in.

STEP 3 Using the given while letting x stand for the unknown, solve for x or the length of the enlarged photograph as in:

Measurements of the original photograph: 3 in. wide and 5 in. long

Measurements of the enlarged photograph: 9 in. wide and x in. long

STEP 4 Equate the two given measurements to solve for the unknown as in:

$$\frac{3\ \cancel{in.}}{5\ \cancel{in.}} = \frac{9\ \text{in.}}{x}$$

$$3x = 5(9\ \text{in.})$$

$$\frac{\cancel{3}x}{\cancel{3}} = \frac{45\ \text{in.}}{3}$$

x = 15 in.

The length of the enlarged photograph is 15 in. or the enlarged photograph is therefore 9 in. by 15 in.

STEP 5 Determine the scale used as in:

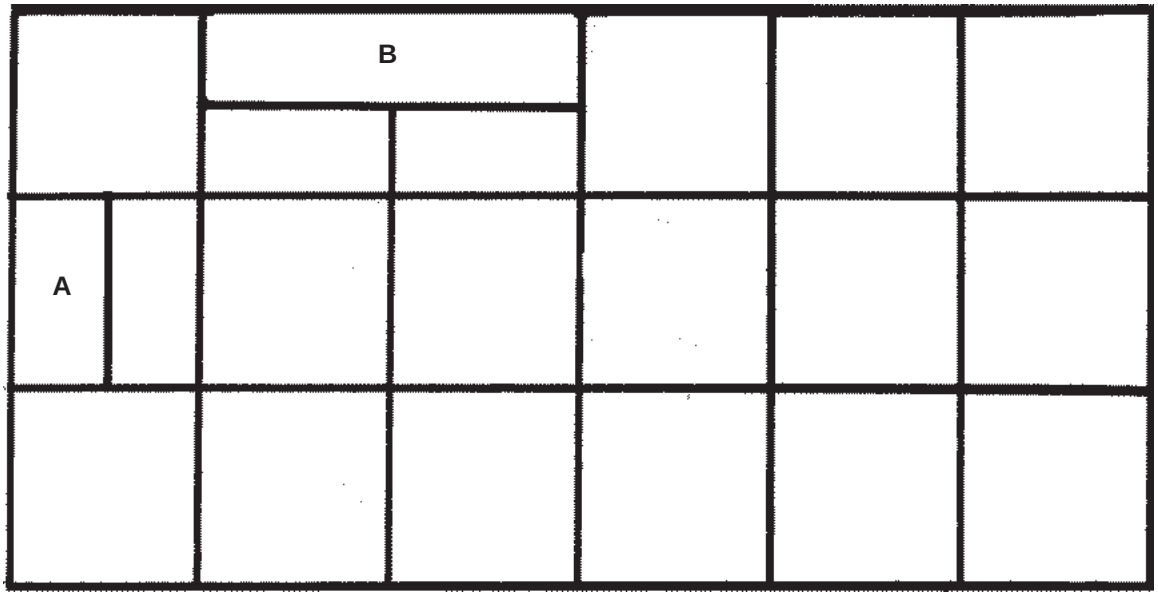
$$\frac{9 \text{ in.}}{3 \text{ in.}} = 3$$

$$\frac{15 \text{ in.}}{3 \text{ in.}} = 5$$

The scale used is 1 in. : 3 in.

Let's See What You Have Learned

A. Interpret the scaled drawing by answering the questions that follow.



1 inch : 3 feet

where:

A is the teacher's table

B is the bookshelf

1. What is the actual length and width of the classroom? _____
2. What is the actual length and width of the teacher's table? _____
3. What is the actual length and width of the bookshelf? _____

B. Solve the following word problems.

1. Mang Andoy plans to build a house with two rooms. Each room has an actual length of 21 ft. and a width of 9 ft. If 3 ft. is represented by 1 in., help Mang Andoy draw the room to scale.

2. A student bought a road map. His teacher asked him to make an enlarged copy of it. The map was 20 cm long and 8 cm wide. If the scale he was told to use was 2 cm : 1 in., how big will the enlarged map be?

Compare your answers with those in the *Answer Key* on pages 39 to 42. Did you get a perfect score? If you did, that's very good. You may then proceed to the next part of the module. If you didn't, that's okay. You just have to review the parts of the module you made mistakes in before going to the next part of the module.

Let's Remember

- A **scale** is a proportion between two sets of dimensions (as between those of a drawing and its original).
- A scale is used when drawing objects or places that are either too big or too small to draw in their actual sizes.

Well, this is the end of the module! Congratulations for finishing it. Did you like it? Did you learn anything useful from it? A summary of its main points is given below to help you remember them better.

Let's Sum Up

This module tells us that:

- The four primary directions used in maps are north, south, east and west.
- The four secondary directions used in maps are northeast, northwest, southeast and southwest.
- A compass is a device used to determine the directions to and location of a certain place.
- The following are the steps one should take in locating places on a map:
    1. Determine the larger area in which the place you want to find is located, e.g., Cebu in the Visayas, Kalinga in Luzon and Davao in Mindanao.
    2. Focus on that larger area and find the place by going over the map carefully.
- One should take the following steps in finding the distance between two places:
    1. Find the exact location of the two places on the map.
    2. Find the shortest distance between these two places.
    3. Know the scale used in the map, for example, 6 cm : 100 km.
    4. Using the given scale, find the total distance between the two places.
- One should take the following steps in drawing maps:
    1. Know the area or place to be drawn.
    2. Identify the parts (roads, landmarks, etc.) of the area or place to be drawn.

3. Determine the distances between particular places or landmarks in the area or place.

4. Draw the area or place to scale.

5. Review your drawing. See if it is similar to the original area or place you wanted to draw in the first place. Do not forget to write the scale you used.

- A scale is a proportion between two sets of dimensions (as between those of a drawing and its original).
- A scale is used when drawing objects or places that are either too big or too small to draw in their actual sizes.

What Have You Learned?

A. Fill in the blanks with the correct words. Choose the answers from those in the box below.

north	northeast	south
southeast	west	southwest
east	northwest	compass

1. The four primary directions used in maps are _____, _____, _____ and _____.
2. The four secondary directions are _____, _____, _____ and _____.
3. A _____ is a device often used to determine directions to a certain place and the location of a place itself.

B. Study the situation below and answer the questions that follow.

A Chinese arrived in Manila to make a surprise visit to his wife in Laguna.

Hmm . . . How am I supposed to get to Laguna from Manila? How far is it from here? Can you help me?

How far is Laguna from Manila?

_____

_____

_____

C. Solve the following word problem. Mang Andoy wants to build a study room for the students in a certain school. The room should be 30 ft. long and 15 ft. wide. If he will use the scale 1 in. : 3 ft., show the scaled drawing below.

Compare your answers with those in the *Answer Key* on pages 43 and 44. Did you get a perfect score? If you did, then you learned a lot from this module and may study a new one. If you didn't, review the parts of the module you made mistakes in first before studying a new module.

Answer Key

A. Let's See What You Already Know *(pages1–3)*

A. 1. north

2. south

3. east

4. west

B. 1. northeast

2. northwest

3. southeast

4. southwest

C. The foreigner can get to Batangas by riding a bus from Manila. He would pass by Cavite and Laguna to get there.

1 line segment = 20 km

Manila to Batangas = 7 line segments × 20 km

= 140 km

D. 1. Bed's length = 3 × 4 ft.

= 12 ft.

Bed's width = 1 × 4 ft.

= 4 ft.

2. Television's length = 1 × 4 ft.

= 4 ft.

Television's width = 1/2 × 4 ft.

= 2 ft.

3. Cabinet's length = 2 × 4 ft.

= 8 ft.

Cabinet's width = 1/2 × 4 ft.

= 2 ft.

B. Lesson 1

Let's Try This (pages 6–8)

Right—east

Top—north

Bottom—south

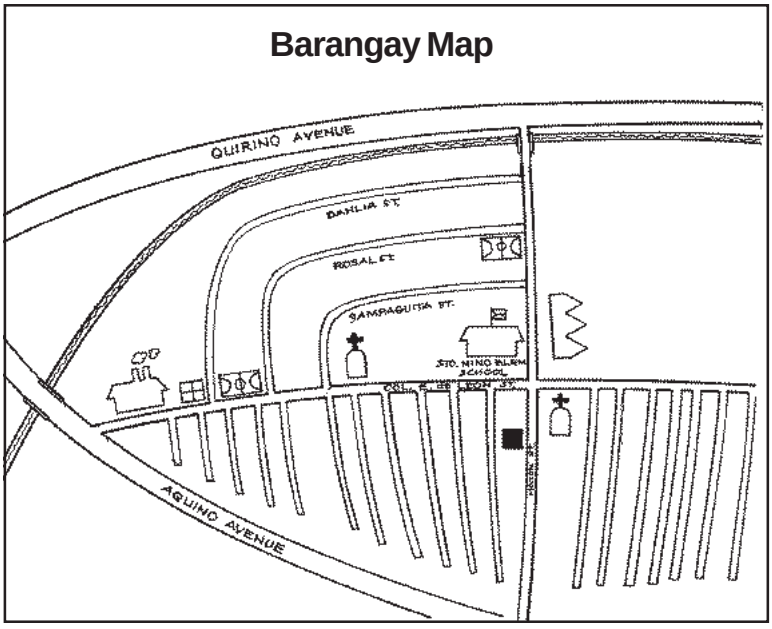
Let's Try This (page 9)

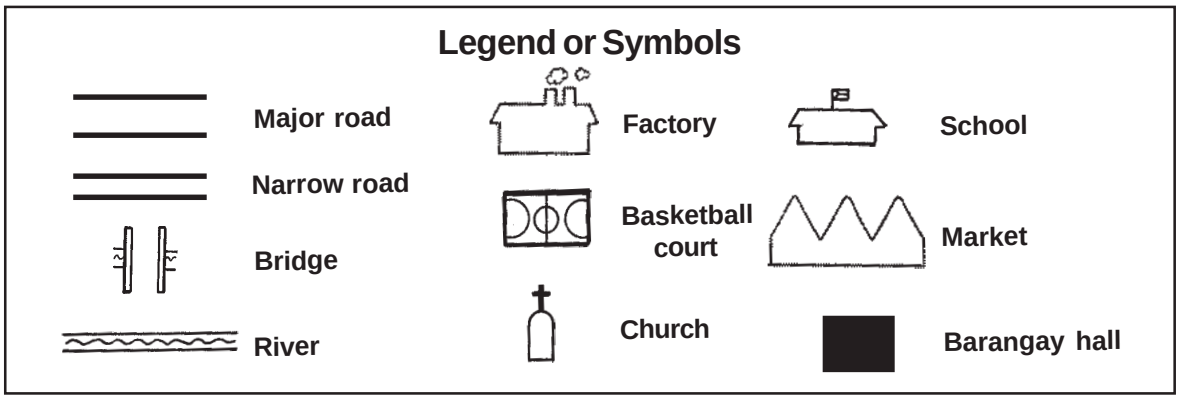
2. backward
3. to the right
4. to the left

Let's Review (page 12)

1. B
2. D
3. F
4. H
5. C
6. E
7. G
8. I
9. A

Let's Try This (pages 18–19)





Let's See What You Have Learned (pages 19–22)

A. Pangasinan is located in Northern Luzon. If you were to go there from Manila, you would pass through the following provinces: Bulacan, Pampanga and Tarlac.

1 line segment = 50 km

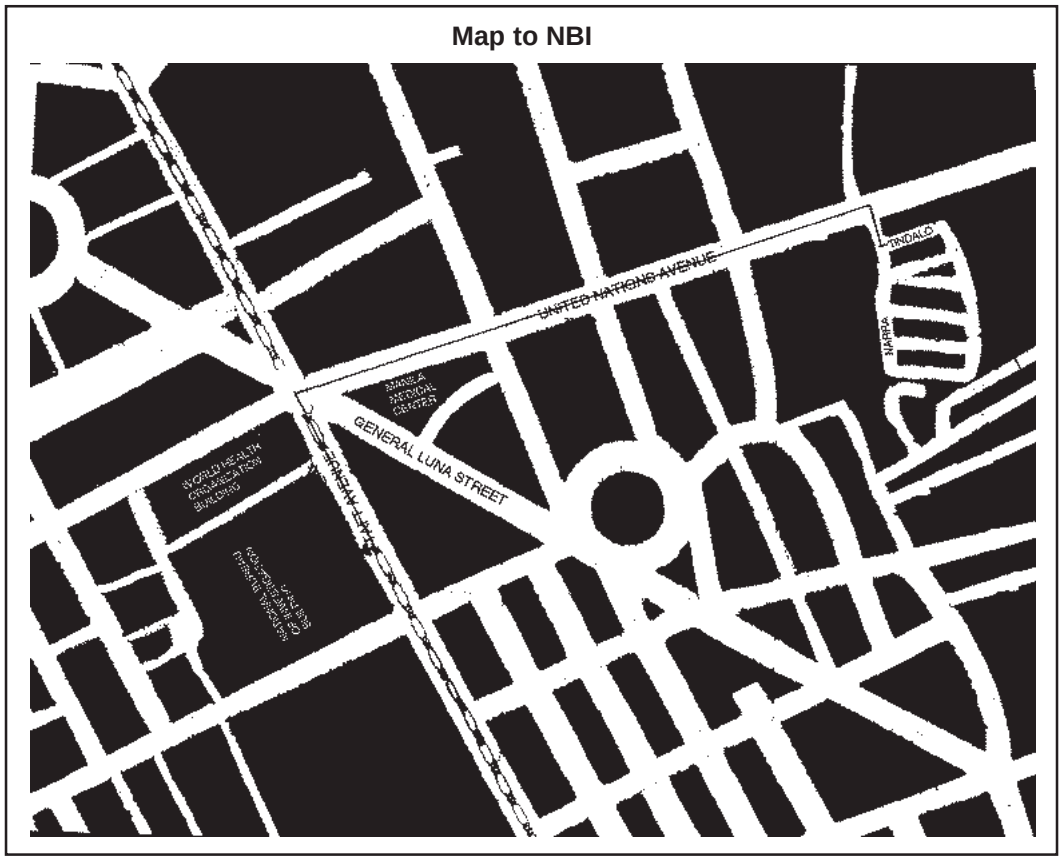
Manila to Pangasinan = 9 line segments

$$= 9 \text{ line segments} \times \frac{50 \text{ km}}{1 \text{ line segment}}$$

$$= 450 \text{ km}$$

The approximate distance from Manila to Pangasinan is 450 km.

B.



C. Lesson 2

Let's Review (page 25)

1. Length of the scaled drawing = 5 in.

   Scale: 1 in. : 3 ft.

   Actual length of the garage $= 5 \text{ in.} \times \frac{3 \text{ ft.}}{1 \text{ in.}}$

   $= 15 \text{ ft.}$

   The actual length of the garage is 15 ft.

2. Width of the scaled drawing = 3 in.

   Scale: 1 in. : 3 ft.

   Actual width of the garage $= 3 \text{ in.} \times \frac{3 \text{ ft.}}{1 \text{ in.}}$

   $= 9 \text{ ft.}$

Let's See What You Have Learned (pages 30–32)

A. 1. Scaled length of the classroom = 6 in.

   Scale: 1 in. : 3 ft.

   Actual length of the classroom $= 6 \text{ in.} \times \frac{3 \text{ ft.}}{1 \text{ in.}}$

   $= 18 \text{ ft.}$

   Scaled width of the classroom = 3 in.

   Actual length of the classroom $= 3 \text{ in.} \times \frac{3 \text{ ft.}}{1 \text{ in.}}$

   $= 9 \text{ ft.}$

   The actual length of the classroom is 18 ft., while its actual width is 9 ft.

   2. Scaled length of the teacher's table = 1 in.

   Actual length of the teacher's table $= 1 \text{ in.} \times \frac{3 \text{ ft.}}{1 \text{ in.}}$

   $= 3 \text{ ft.}$

Scaled width of the teacher's table = ½ in.

Actual width of the teacher's table = $\frac{½ \cancel{in.} \times 3 \text{ ft.}}{1 \cancel{in.}}$

= 1 ½ ft.

The actual length of the teacher's table is 3 ft., while its actual width is 1 ½ ft.

3. Scaled length of the bookshelf = 2 in.

Actual length of the bookshelf = $\frac{2 \cancel{in.} \times 3 \text{ ft.}}{1 \cancel{in.}}$

= 6 ft.

Scaled width of the bookshelf = 1/2 in.

Actual width of the bookshelf = $\frac{1/2 \cancel{in.} \times 3 \text{ ft.}}{1 \cancel{in.}}$

= 1 ½ ft.

B. 1. Given: Actual length of rooms = 21 ft.

Actual width of rooms = 9 ft.

Scale: 1 in. : 3 ft.

Unknown: Scaled length of rooms = ?

Scaled width of rooms = ?

Solution: Scaled length of rooms = $\frac{21 \cancel{ft.} \times 1 \text{ in.}}{3 \cancel{ft.}}$

= $\frac{21 \text{ in.}}{3}$

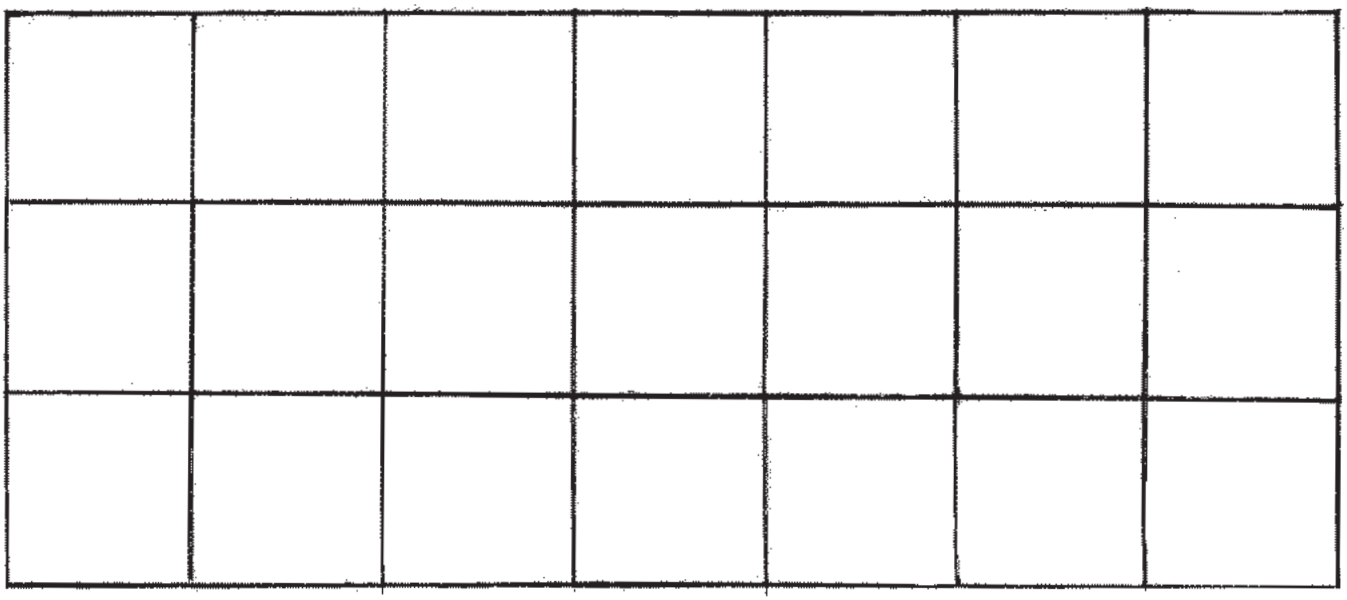
= 7 in.

Scaled width of rooms = $\frac{9 \cancel{ft.} \times 1 \text{ in.}}{3 \cancel{ft.}}$

= $\frac{9 \text{ in.}}{3}$

= 3 in.

Scaled drawing



1 inch : 3 feet

2. Given: Actual length of map = 20 cm

Actual width of map = 8 cm

Scale: 2 cm : 1 in.

Unknown: Scaled length of map = ?

Scaled width of map = ?

Solution: Scaled length of map $= 20 \text{ cm} \times \frac{1 \text{ in.}}{2 \text{ cm}}$

$= \frac{20 \text{ in.}}{2}$

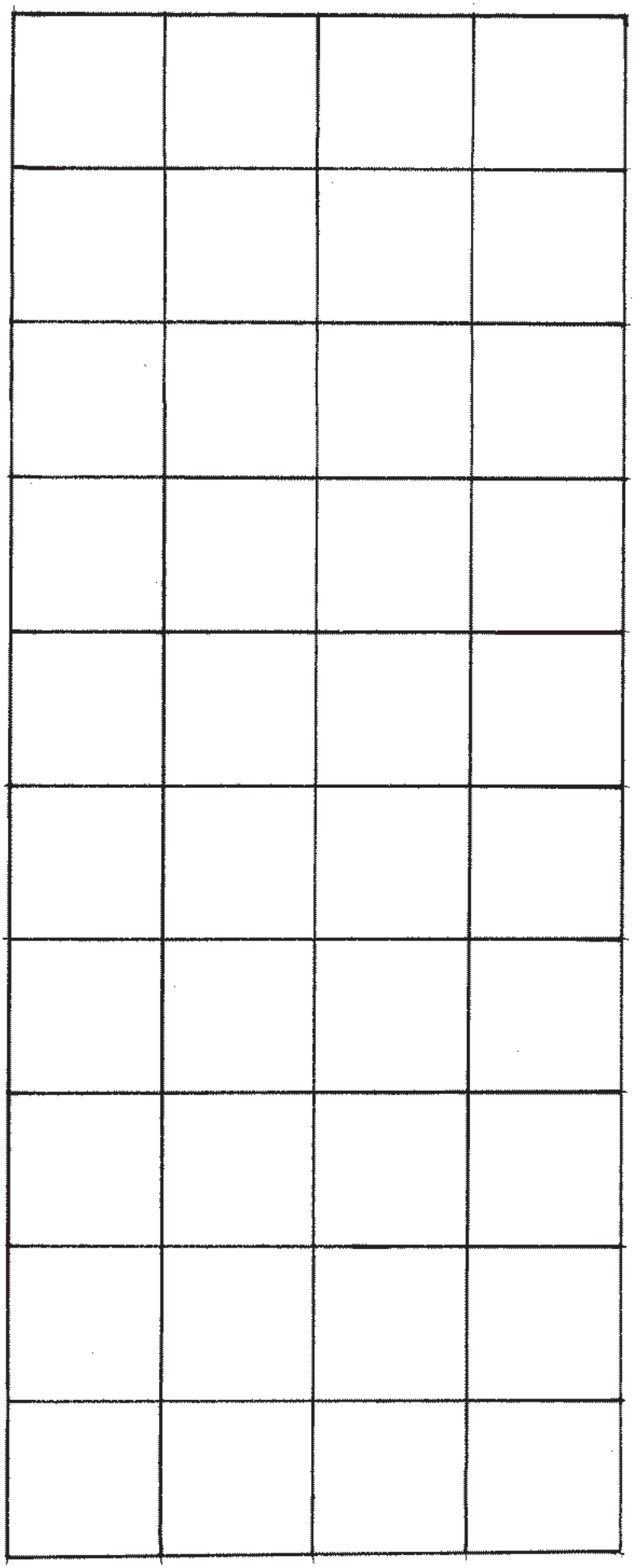
$= 10 \text{ in.}$

Scaled width of map $= 8 \text{ cm} \times \frac{1 \text{ in.}}{2 \text{ cm}}$

$= \frac{8 \text{ in.}}{2}$

$= 4 \text{ in.}$

Scaled drawing



D. What Have You Learned? *(pages 34–35)*

A. 1. north, east, west, south

2. southeast, northeast, northwest, southwest

3. compass

B. 1 line segment = 30 km

$$8 \text{ line segments} \times \frac{30 \text{ kilometers}}{1 \text{ line segment}} = 240 \text{ km}$$

Laguna is approximately 240 km away from Manila.

C. Given: Actual length of room = 30 ft.

Actual width of room = 15 ft.

Scale: 1 in. : 3 ft.

Unknown: Scaled length of room = ?

Scaled width of room = ?

Solution: Scaled length of room $= 30 \text{ ft.} \times \frac{1 \text{ in.}}{3 \text{ ft.}}$

$$= \frac{30 \text{ in.}}{3}$$

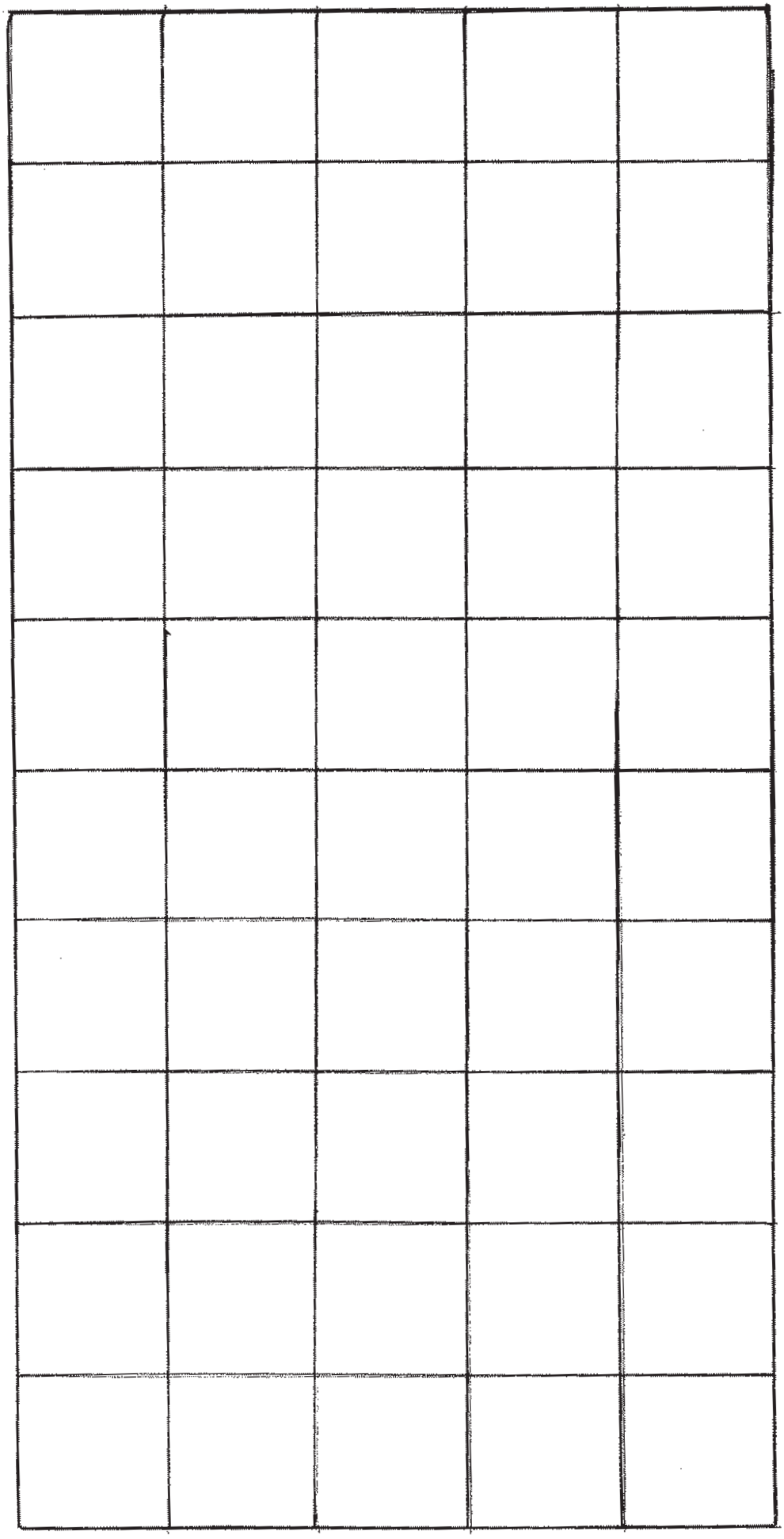
$$= 10 \text{ in.}$$

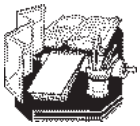
Scaled width of the room $= 15 \text{ ft.} \times \frac{1 \text{ in.}}{3 \text{ ft.}}$

$$= \frac{15 \text{ in.}}{3}$$

$$= 5 \text{ in.}$$

Scaled drawing





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