

**GOAL:** Determine the actual size of an apartment from a scale drawing.

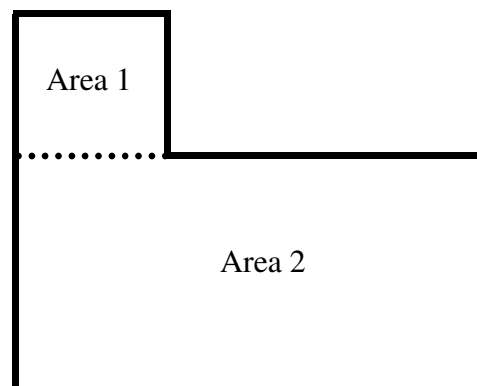
### CLASSWORK DETAILS DAY 2

Today we are going to measure the dimensions of rooms of an apartment as they were drawn to scale. From this we can determine the dimensions of these rooms in real-life.

Important information to remember for today's activity:

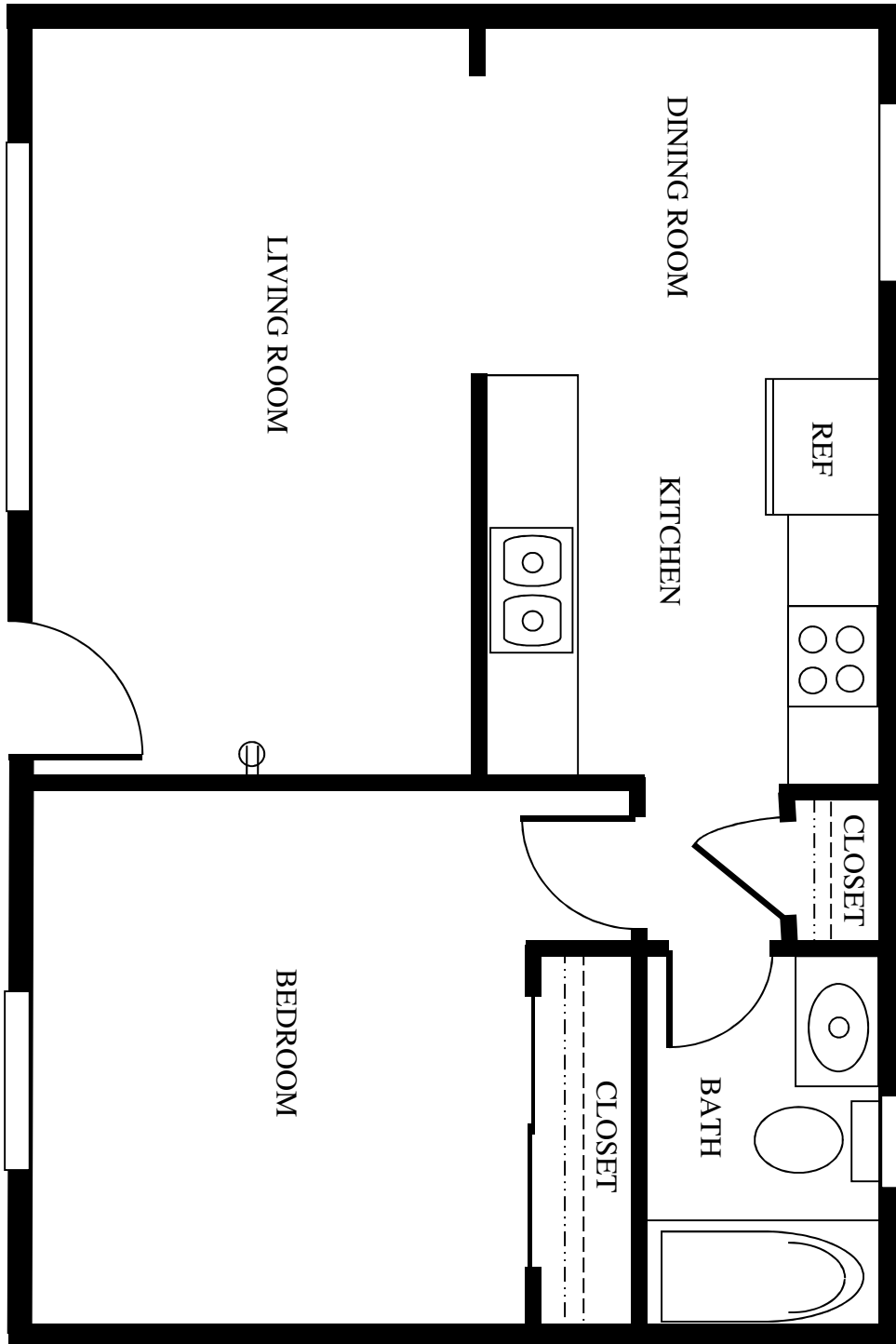
Width  $\longleftrightarrow$  Length  $\updownarrow$        $\frac{1}{4} = 0.25$      $\frac{2}{4} = 0.5$      $\frac{3}{4} = 0.75$      $\frac{4}{4} = 1.0$

- Measure to the nearest quarter of an inch from the inside of the wall to the inside of the wall
- The perimeter of a rectangle is the distance around the room and can be found by adding all the sides or by using the formula:  $P = 2L + 2W$
- The area of a rectangle is the number of squares that can fit into the rectangle. One easy way to think of it is that the floor covers the area of the room. The area of a rectangle can be found by the formula:  $A = L \cdot W$
- The scale is the same as yesterday:  $\frac{1}{4}$  in = 1 ft (this also means 1 in = 4 ft)
- Area is measured in *square units*. You can't compare perimeter and area as they are measured with different types of units.
- The bedroom is not a perfect rectangle. You are going to have to divide up the room into two separate rectangles and determine the area of each. For example:



Place all notebook paper with calculations on it in your architecture binder.

**APARTMENT PLAN**



Scale: 0.25 in. = 1 ft.

<i>Scale used</i>	
-------------------	--



ROOM	Drawing Width (in)	Drawing Length (in)	Real-life Width (ft)	Real-life Length (ft)
Living Room				
Kitchen				
Dining Room				
Part 1 (small) Bedroom				
Part 2 (large)				
Bath				
Large Closet				
Hall Closet				

ROOM	Real-Life Perimeter (ft)	Real-life Area (ft <sup>2</sup> )
Living Room		
Kitchen		
Dining Room		
Part 1 (small) Bedroom		
Part 2 (large)		
Bath		
Large Closet		
Hall Closet		
Sum of all rooms		

Now measure the entire apartment, including the outside walls in your measurement.	
What is the real-life width (ft)?	
What is the real-life length (ft)?	
What is the real-life perimeter (ft)?	
What is the real-life area (ft <sup>2</sup> )?	
Does the sum of the areas of all the rooms equal the total area of the apartment? Why or why not?	

If you doubled the length of each side of a room, the perimeter would multiply by...	
If you doubled the length of each side of a room, the area would multiply by...	
A house has outside measurements of 46 feet by 56 feet. You want to make a scale drawing of the house on 8.5 by 11 inch graph paper. You need to obtain the largest accurate drawing that will fit on the paper. Your scale should be 1 inch equals...	Nearest whole number

**TURN IN ALL CALCULATION WORK DIRECTLY BEHIND THIS PAGE**

Architecture 2HW: **Home Measurements Matrix**

Name: \_\_\_\_\_

Tonight you are going to start a library of information that you will need to make decisions about the size and layout of the rooms in your final project. The assignment is to find out the size of various rooms in your house. Many of these measurements will be important when designing your own house for the final project.

ROOM	Width (ft) ↔	Length (ft) ↑↓	# of Overhead Lights	# of Light Switches	# of Overhead Fans	# of Electrical Outlet locations	Room has a door to enter	# of exterior & interior doors		Doors open into or out of room?	Room is next to (A) kitchen (B) dining room	Ceiling height	Touches an exterior wall
								Y or N	E I				
	<i>Round to nearest foot</i>		<i>Not light bulbs</i>			<i>Not receptacles</i>	Y or N	E	I	I or O	<i>A&amp;B if both</i>		Y or N
Kitchen													
Dining Room													
Living Room													
Master Bedroom													
Master Bathroom													
Master Bedroom Closet													
Bedroom #2													
Bathroom #2													
Half bathroom													
Foyer													
Laundry Room													

How thick are your walls in most places?		Total number of rooms in your house (not including closets):	
Are there halls in the house? If so, where? What are they next to and what do they connect?			

On a sheet of computer paper draw a **bubble diagram** (not to scale) of how the rooms in your house connect. You **do not** need to include doors, windows, or any items in the rooms (such as sinks, bathtubs, ovens, etc.). The purpose of this diagram is to see which rooms connect to which other rooms.

Bubble diagrams are intended for the architect as they think through their design. The bubble diagramming process helps to get all their creative ideas down on paper, without worrying yet about what the final design might be. This process is the equivalent of outlining a story you might do in a LA class. Bubble diagrams help architects visualize how the spaces are organized and which spaces are adjacent to each other.

Use an entire sheet of paper per floor. Each bubble represents a different room/space. It should be drawn roughly oval in shape. Don't worry about exact size, but pay attention to the proportion of each bubble and how it fits into the overall building. Label each bubble with the name of the room or space.

