

Unit 5: Proportional Reasoning Lesson 5.2



Game On!

Sarah's parents just announced plans to refinish their basement as a family entertainment centre consisting of three main areas: a TV entertainment area, a games area (pool table, games table, and/or foosball table), and a reading/lounging area.

They have hired an interior designer to create this unique room. The available space is rectangular and measures 20 feet by 24 feet.

As the interior designer,



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- Complete the table provided with the items intended to go into the basement. State the actual dimensions of each item as well as the number of squares on the grid that will be occupied by each item.

The following three pieces are the major focus pieces for the recreation room.

- Pool table: 7 feet by 3.5 feet
- HD TV: 75 inches (diagonal measure), with a height of 37.5 inches and a thickness of 3 inches (no wall mount)
- Two piece sectional couch (as shown in the diagram):
Long end: 7 feet by 2.5 feet
Short end: 4 feet by 2.5 feet



In addition to the three pieces, all furniture pieces on the furniture list page will be required for the recreation room.

- Design a floor plan that gives enough space for the three recreational areas, using the floor plan of the recreation room provided.
 - TV entertainment area
 - Games area (Pool table, games table, and/or foosball table)
 - Reading/Lounging area

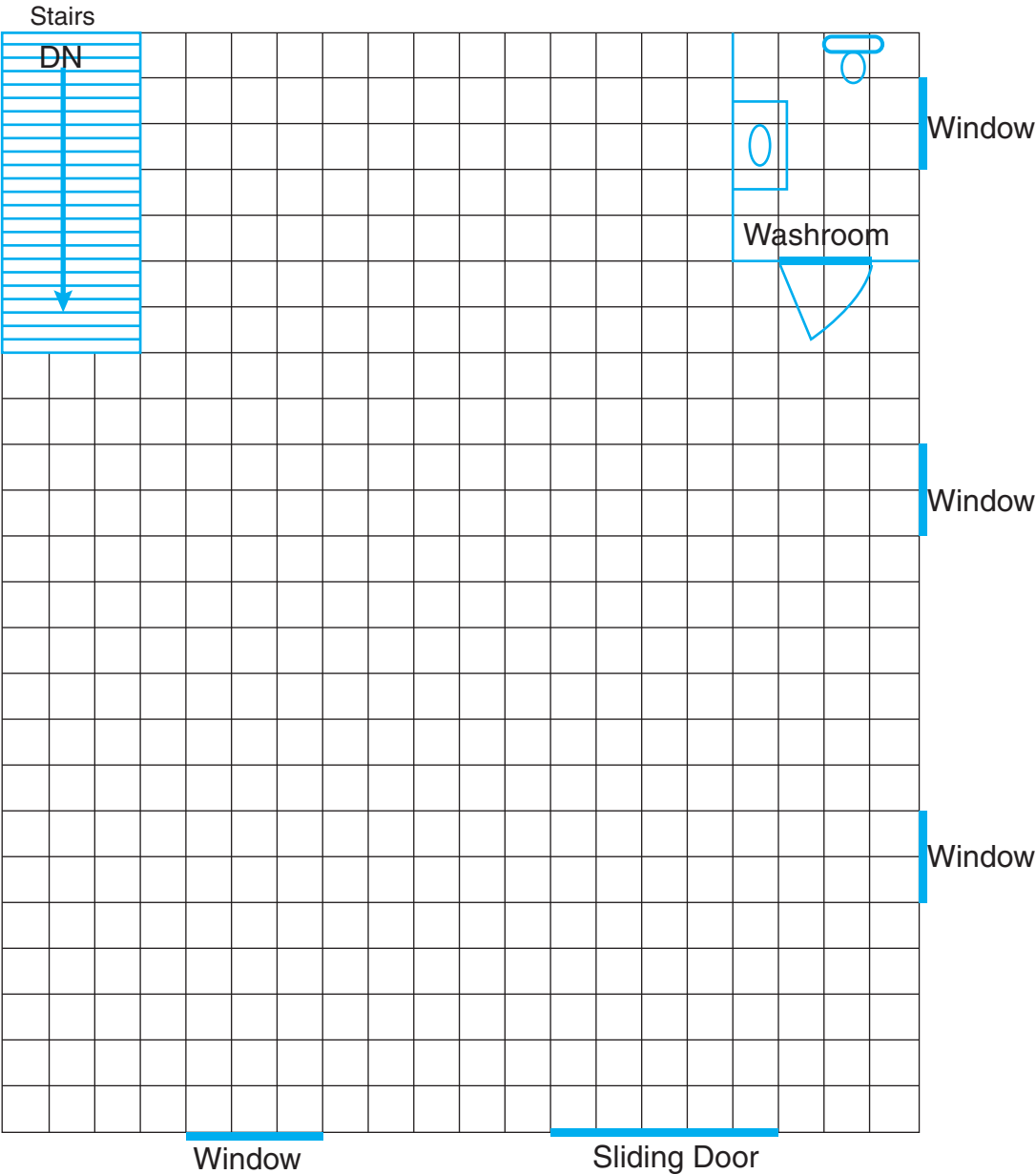
NOTE: There must be a minimum of 2 ft of open space all the way around any piece of furniture that is **not** against the wall. Exceptions include: end tables, board game table, and ottoman. These exceptions can be placed alongside other pieces or up to 1 foot away from other pieces.

- Identify the scale used in the bottom left corner of the diagram.
- Label each item on the scale diagram.
- Use a ruler to draw each piece. Colouring is optional.

#	Item Description	Actual Size		Number of squares needed on Scale Diagram	
1	Pool table	length	7 feet	length	
		width	3.5 feet	width	
2	Big Screen HD TV	length		length	
		width		width	
3	Two piece sectional couch	length	7 feet with seat width of 2.5 feet	length	
		width	4 feet with seat width of 2.5 feet	width	
4	Coffee Table	length		length	
		width		width	
5	End Table	length		length	
		width		width	
6	Arm Chair	length		length	
		width		width	
7	Arm Chair Ottoman	length		length	
		width		width	
8	Board Game Table	length		length	
		width		width	
9	Board Game Chair	length		length	
		width		width	
10	Bean Bag	diameter		diameter	
11	Foosball Table	length		length	
		width		width	
12	Gaming Chair	length		length	
		width		width	

List of Pieces with their lengths and widths provided (assume that none of the pieces' heights conflict with the height of the room).

 <p>Arm Chair 2.5 ft by 2.5 ft Ottoman 2.5 ft by 1.5 ft (2 sets are required)</p>	 <p>Foosball Table 5 ft by 1.5 ft</p>	 <p>Chair 2.5 ft by 2.5 ft Game Table 2 ft by 2 ft</p>
 <p>Gaming Chair 3.5 ft by 2.5 ft (2 chairs are required)</p>	 <p>Recliner 3.5 ft by 3.0 ft</p>	 <p>Bean bag with a diameter of 65 cm (2 sets are required)</p>
 <p>Coffee Table 1.0 m by 1.0 m End Tables 50 cm by 50 cm</p>	<p>Conversions:</p> <p>1 metre = 3.28084 feet</p> <p>100 centimetres = 1 metre</p> <p>12 inches = 1 foot</p>	<p>all images © Thinkstock</p>



3. Answer the following questions related to the scale diagram.

1

- a. State the actual washroom dimensions.

2

- b. After seeing a larger pool table in a store, Sarah's dad decided he'd rather have a pool table that measures 10 feet by 5 feet. What is the scale factor of the original pool table in comparison with the larger pool table? State the scale factor as a fraction and as a decimal, rounded to the nearest tenth.

2

- c. Would the new, large table be able to fit into the recreation room space with the required 2 feet of surrounding space? Explain why or why not.

4

- d. Sarah's dad also found a table hockey game with dimensions $9\frac{1}{4}$ inches by $4\frac{15}{16}$ inches. Unfortunately, this game was only $\frac{1}{4}$ the size of the table top hockey game he wanted. Determine the dimensions of the table Sarah's dad wanted.

3

- e. If the flooring needs to be changed (exclude stairs and washroom), how much would the parents have to spend if they are charged \$10.00 per square foot? Area formula for rectangle:
 $A = l \times w$.

If you have completed all steps you will earn full marks.

Labelled diagram with correct scale for each piece (3 marks)	<input checked="" type="checkbox"/>
Converted measurements to feet when necessary (3 marks \times 3)	<input checked="" type="checkbox"/>
All three spaces are clearly separate (3 marks)	<input checked="" type="checkbox"/>
All items are drawn to scale using a ruler (3 marks)	<input checked="" type="checkbox"/>
2 feet minimum of surrounding space around each piece (exception – against wall) (3 marks)	<input checked="" type="checkbox"/>
Completed chart with proper length and width measurements (3 marks)	<input checked="" type="checkbox"/>
All pieces are in the full basement space (3 marks)	<input checked="" type="checkbox"/>
HD TV dimensions determined (3 marks)	<input checked="" type="checkbox"/>
Correct answers to questions in part 3 (12 marks)	<input checked="" type="checkbox"/>
Out of 42 total marks	

/42

End Of Workbook 5A

You have completed *Lesson 5.2 Game On!*. Please review all work in *Workbook 5A* to ensure it is your best work. Submit *Workbook 5A* for marking at this time and proceed to *Lesson 5.3* in the *Module*.

