

Design a Dream Bedroom Math Project

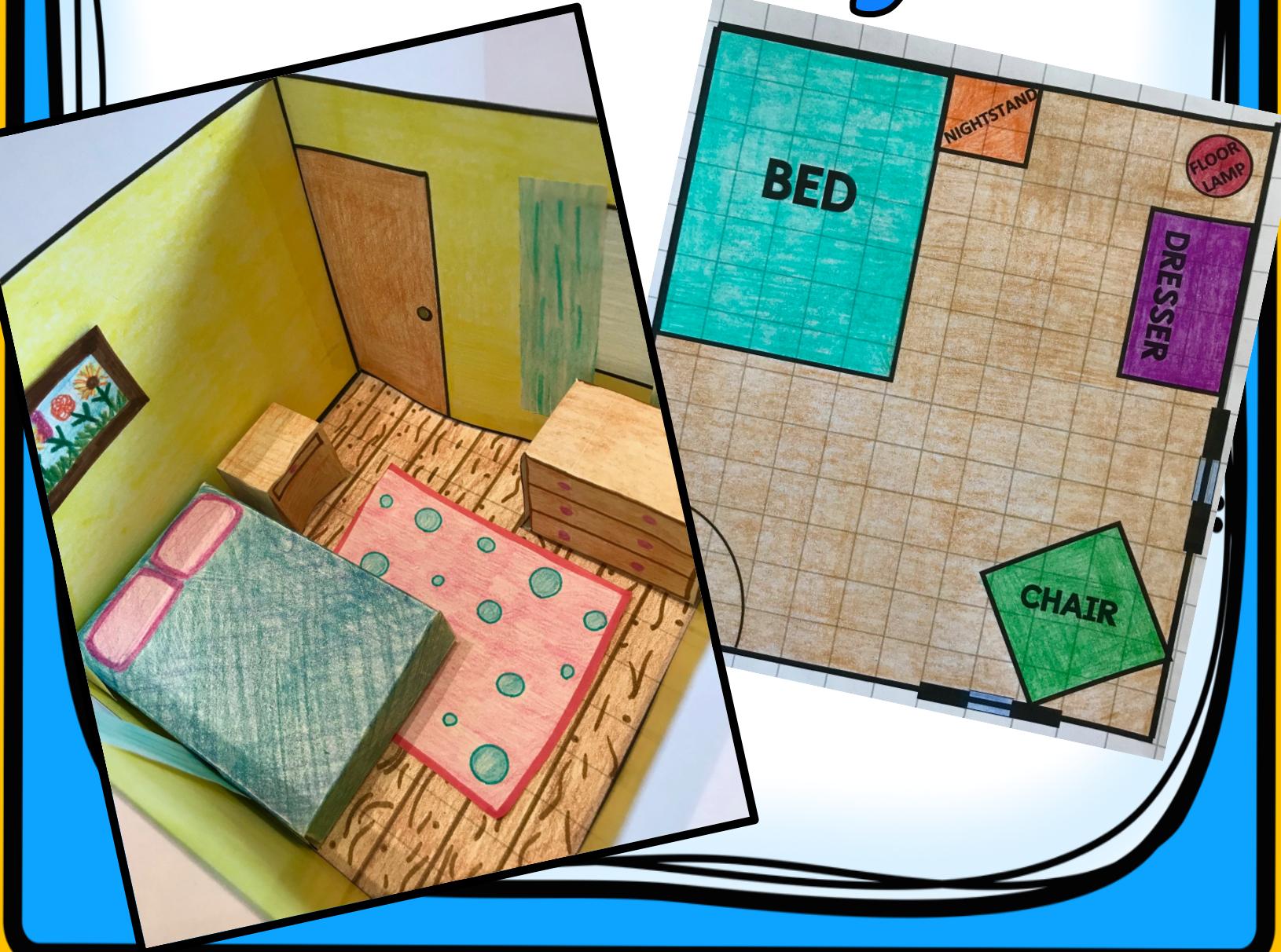
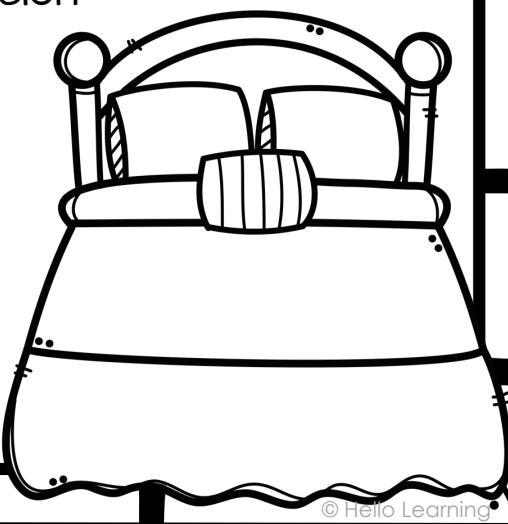
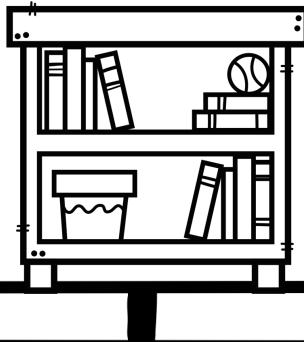


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PROJECT OVERVIEW

| | |
|---------------------------|---|
| Topic | Interior Design |
| Content | <ul style="list-style-type: none">• Area• Perimeter• Surface area• Scale• Multiplication• Division• Addition (whole numbers and/or decimals)• Nets/3D models• Architecture symbols |
| Driving Question | How can I design my bedroom so that it reflects my personal style and interests? |
| Inquiry and Choice | <p>Students will get to choose:</p> <ul style="list-style-type: none">• Room size• Furniture• Wall treatments• Floor coverings• Furniture/bedroom accessories <p>Reference sheets for furniture, wall treatment, and flooring options are included. You can choose to have students use those, and research additional items not on the list, or have students research pricing for everything.</p> |
| Critique and Revision | Reflection questions are built in after students create their floor plan and after they calculate their expenses. As a part of the reflection time, I suggest they also pair up with another student, or small group and discuss/critique each others projects. |
| 21st Century Competencies | <ul style="list-style-type: none">• Creativity• Problem Solving• Communication |
| Audience | <ul style="list-style-type: none">• Classmates• Families |

Teacher Information

Dream Bedroom Project Outline

| Day | Skills | The teacher will... | The students will... |
|---------------------------------------|---|---|--|
| 1 Room Size Door Windows | -Scale Factor -Area -Perimeter -Multiplication | -Introduce the project -Minilesson on scale/scale factor -Minilesson on room size, door(s) and window(s) and how to draw them on the floor plan | -Practice working with scale factor -Brainstorm what their dream bedroom would include -Choose a room size, and decide where they want their door and window(s) -Draw an outline of their room for their floor plan -Calculate the area and perimeter of their room -Add a door and window(s) to their floor plan using blueprint symbols |
| 2 - 3 Furniture | -Scale Factor -Area -Perimeter -Multiplication -Addition -Digital Literacy -Reading carefully for information | -Minilesson on furniture, how to choose, how to find measurements, how to draw onto floor plan -Minilesson on searching online for furniture and how to find dimensions of furniture | -Choose furniture -Use the "Furniture Calculations" sheet to record furniture chosen, dimensions, area and perimeter for each item -Draw furniture on their floor plan |
| 4 Walls | -Area -Surface Area -Multiplication -Division | -Minilesson on calculating surface area of walls, choosing paint/wallpaper, and calculating how much is needed based on surface area of room | -Choose a wall covering (paint or wallpaper) -Calculate the surface area of their walls -Determine how much paint/wallpaper they need to buy -Calculate how much their paint/wallpaper will cost |

Teacher Information

Dream Bedroom Project Outline

| Day | Skills | The teacher will... | The students will... |
|-------------------------------|---|---|--|
| 5 Floors | -Area -Multiplication -Division | -Review calculating area -Share flooring choices and how to calculate amount needed and cost | -Choose a flooring type -Calculate how much of the flooring they need -Calculate how much their flooring will cost |
| 6-7 Dream Bedroom Expenses | -Organization -Adding money | -Share the "Cost List" and instruct students in how to find the cost of items they may want that are not on the list (online, catalogs, ads/store flyers) | -Use the "Cost List" to find the cost of the items they want in their bedroom -Use other resources to find the cost of items not on the list (if they have any) -Record the cost of all items on the "Dream Bedroom Expenses" sheet and keep a running total -Add the flooring and wall coverings costs from previous days to their total |
| 8-10 Build your Dream Room | -Building using scale -Nets and 3D shapes -Geometry -Incorporating art into math -Visual spatial skills -Fine motor skills | -Copy the wall/floor pages onto cardstock for students to use OR -Use the printable pages to make templates that the students can trace onto cardstock to make their model -Teach how to assemble the floor and walls -Teach how to make 3D models of furniture using the grid paper and bed examples | -Choose the correct size floor and walls to build their scale model -Build scale models of their furniture using grid paper -Color the floor/walls incorporating the items they wanted in their dream room and the wall covering and flooring choices they made |

Teacher Information

HELPFUL HINTS

Scale

- I usually talk about maps and model cars/planes to make a connection the kids are familiar with
- You can choose whether or not to use the scale model practice sheet based on the needs of your class.

Room Size

- The grid paper provided will allow for 13 squares x 18 squares.
- I have my students draw their wall outline in black marker so that it stands out on the page more

Door

- Most kids just have one door in their bedroom, but they can have more if they want to and they can fit
- Remind students that their door needs to fully open, so they cannot put other items in its way

Window(s)

- Windows can go anywhere in the room, and students can put other items in front of a window on their floor plan

Furniture

- When I do this project with my class I require that they all have a bed, dresser and nightstand. Anything additional is optional
- If you have access to technology you can have students look for additional furniture online.
- Height of furniture is not important for making the floor plan
- You can have students draw their furniture on the grid paper right away or have them made "pieces" that they can move around until they find their ideal layout. To make the pieces they just draw the outline of the item on separate grid paper, label it and cut it out. Then they can put the piece onto their floor plan and move it around until they find where they like it
- I have students outline their furniture with black marker so it stands out more

Teacher Information

HELPFUL HINTS

Walls

- If you have access to paint and wallpaper samples the kids always enjoy looking through them and choosing a color/style they like
- I do not have my students subtract the area of the door/window(s) from their overall wall surface area. You can choose whether or not to have your students do it.

Floors

- If you have access to wood floor and carpet samples the kids always enjoy looking through them and choosing a color/style they like

Floor Plan

- I have included a sample finished floor plan so you/students can see what they are making
- Make extra copies of the floor plan grid paper. I have found that my students use it ☺
- You can choose whether or not to have students color in their floor plan or just keep it black and white
- This can be the final step of the project if you do not want to go on to calculate costs and build a 3D model

Cost of Dream Bedroom

- This is optional and depends on how much time you have to do the project.
- Calculating the costs gives the students a realistic view of how much things really cost.
- I tried to include sample prices for many common bedroom items kids in my classes have frequently included. If your students want to find the price of items that are not on the list they can look online if you have easy access to technology. I try to guide my students to a few familiar store sites (ex: Target, Walmart, Ikea) so they don't get lost searching online

Teacher Information

HELPFUL HINTS

Dream Room Model

- This is also optional, depending on your time and the interests of your class. My students LOVE building their models and are always so happy to incorporate art into math class, but it does take time.
- I have included templates for the different floor and wall sizes you will need. You can either print them out on cardstock or make "templates" that students can use to trace onto cardstock/colored paper and cut out
- I included a grid on the floors for the 3D models so students know where to place their furniture or so they can draw the outline onto the floor if you are choosing to just have students draw outlines and not make 3D models
- You can choose whether to have your students build 3D models of their furniture or just draw outlines onto the floor like they did on their floor plan..
- If your students are building 3D nets to make furniture I recommend using cardstock instead of copy paper. It is more sturdy and the 3D shapes are more sturdy to put together
- I have included template nets for making the four bed sizes that can be used to teach students how to make the nets using their furniture dimensions.
- Also included are templates for the three sizes of dressers.
- Templates for the different nightstand sizes are not included.... See the next bullet point for my reasoning behind not giving students pre-made templates for everything.
- Having students make their own nets for their other furniture is great practice in working with nets and getting a hands on feel for how 3D shapes are formed. It also helps build visual spatial skills. They may need a few tries to get it right, but through trial and error they learn pretty quickly how to use the dimensions to build a variety of items.
- Although they are drawing the nets on the grid paper, they can choose to fold up their net with the grid on the inside so they can color the outside.
- Encourage students to color/decorate their 3D items before assembling them and gluing them to the floor, it is much easier before it is assembled!

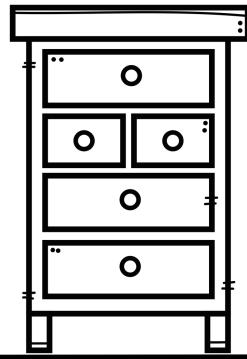
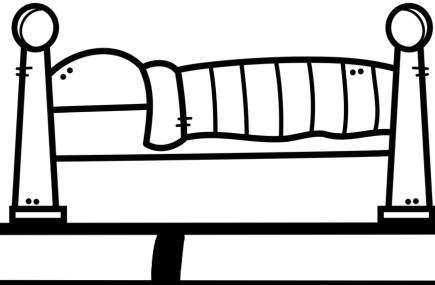
General

- You can pick and choose which parts of the project you want to have your students do, and how long you want to give them to work on each part
- Students love looking at samples and catalogs. If you have access to paint chips, wood flooring samples, carpet samples, or catalogs from furniture/home decorating stores bring them in!
- Encourage students to use a ruler when drawing their floor plan, it looks so much neater!

My Dream Bedroom - Brainstorming



Write and/or draw the things you would want to be a part of your dream bedroom.

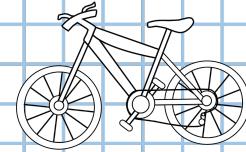
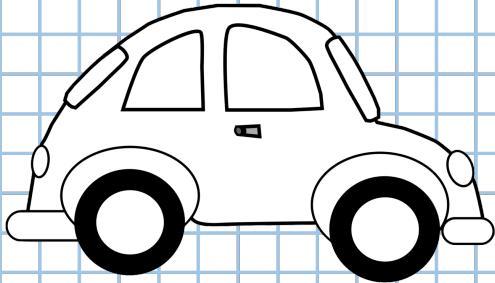


Scale Factor

Scale factor is the ratio of the length of an item in a drawing to the length of that item in real life. For this project we will use the scale factor 1 foot : 1 square

The car below is 13 squares long. In real life it would be 13 feet long.

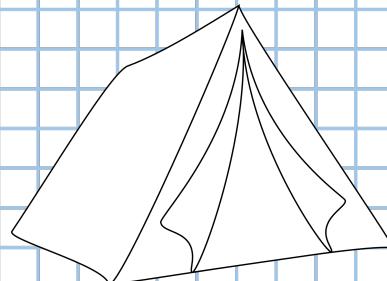
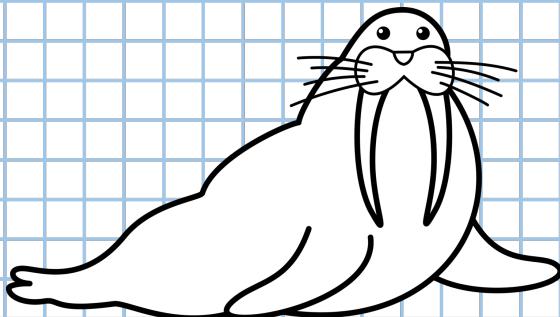
Directions: Find the lengths and heights of the items shown below. Remember, 1 square = 1 foot.



Bike = _____ feet long

Car in drawing = 13 squares long

Car in real life = 13 feet long



Tent = _____ feet tall

Walrus = _____ feet long



Gnome = _____ feet tall

Draw a rectangle that is
 $9' \times 7'$ in real life in the
space below

Basic Bedroom Features- Walls, Doors, and Windows

- I. Choose the size of your bedroom. Your four bedroom size choices are below. Circle the bedroom size you are choosing.

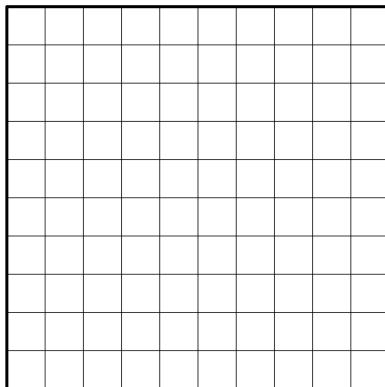
10' x 10'

10' x 12'

12' x 14'

13' x 17'

2. The perimeter of my bedroom is _____
3. The area of my bedroom is _____
4. Draw the walls of your bedroom on your graph paper. Remember, one foot is equal to one square on the grid.

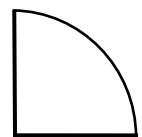
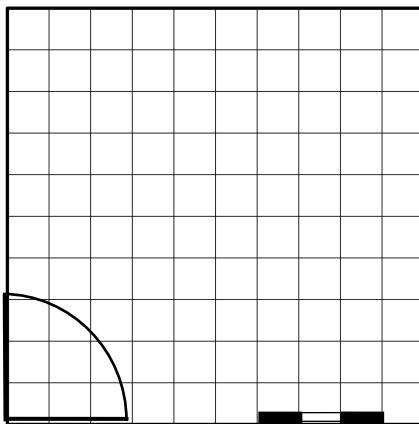


Example

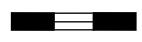
10' x 10' bedroom

5. A standard door is three feet wide. Decide where you would like your bedroom door to be located. When you decide where you want your door, draw it on your bedroom plan using symbol for a door.

Example



Door symbol



Window symbol

6. A standard window is three feet wide. Decide how many windows you want in your room and add them to your bedroom plan using the symbol for a window..

Required Furniture

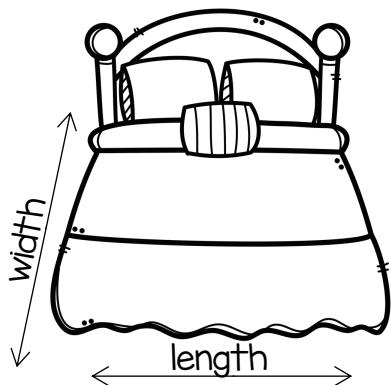
Different sizes of beds, dressers and nightstands are shown below. For each item, choose the size you would like and add it to the furniture calculations sheet.

Calculate the area and perimeter for each item.

Then add the items onto your bedroom plan.

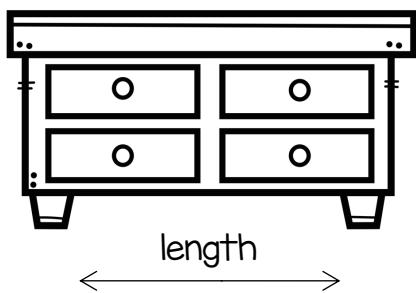
Remember, 1 foot = 1 square on your bedroom plan.

Bed



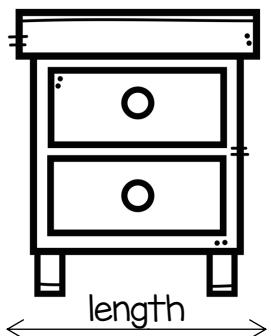
| Size | Width | Length |
|-------|----------|----------|
| Twin | 6 feet | 3 feet |
| Full | 6 feet | 4.5 feet |
| Queen | 6.5 feet | 5 feet |
| King | 7 feet | 6 feet |

Dresser



| Size | Width | Length |
|--------|----------|----------|
| Small | 1.5 feet | 3 feet |
| Medium | 2 feet | 3.5 feet |
| Large | 2 feet | 4 feet |

Nightstand



| Size | Width | Length |
|--------|----------|----------|
| Small | 1.5 feet | 1.5 feet |
| Medium | 1.5 feet | 2 feet |
| Large | 2 feet | 2.5 feet |

Optional Furniture

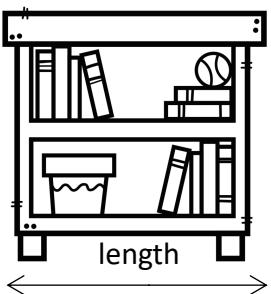
Different sizes of bookcases, desks, chairs and couches are shown below. For each item you would like, choose the size you want and add it to the furniture calculations sheet.

Calculate the area and perimeter for each item.

Then add the items onto your bedroom plan.

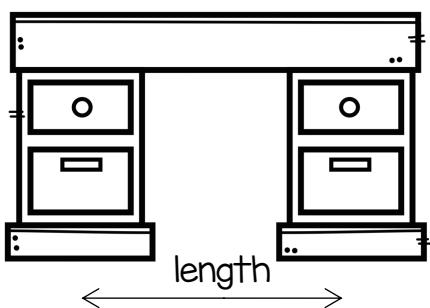
Remember, 1 foot = 1 square on your bedroom plan.

Bookcase



| Size | Width | Length |
|-------|----------|--------|
| Small | 0.5 feet | 3 feet |
| Large | 1 foot | 5 feet |

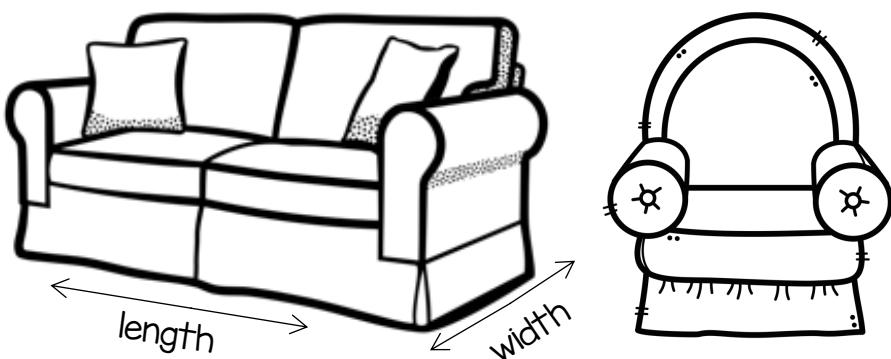
Desk



| Size | Width | Length |
|----------------------|----------|----------|
| Kids Desk | 2 feet | 2.5 feet |
| Computer desk- small | 2.5 feet | 3 feet |
| Computer desk-large | 2.5 feet | 5 feet |

Chair, Loveseat or Couch

| Size | Width | Length |
|----------|--------|--------|
| Chair | 3 feet | 3 feet |
| Loveseat | 3 feet | 5 feet |
| Couch | 3 feet | 7 feet |



*If you would like to include items not on this page, you will need to do some additional research to find the dimensions of those items.

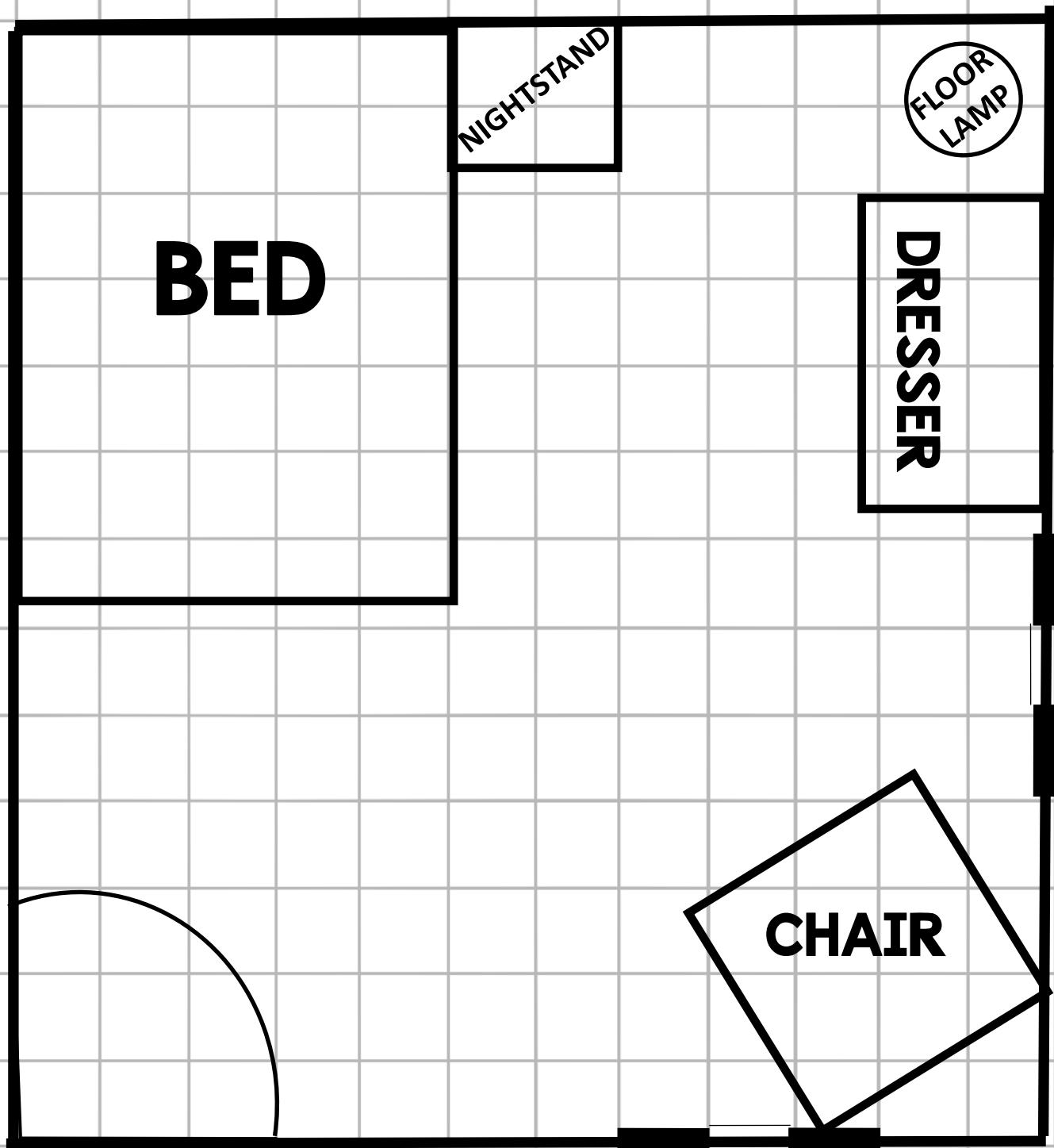
Furniture Calculations

For each item you are putting into your dream bedroom record the item, dimensions, area and perimeter on the chart below.

| Item | Dimensions (length x width) | Area of item | Perimeter of item |
|------|--------------------------------|--------------|----------------------|
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SAMPLE

12' x 13' Room Floor Plan



MY BEDROOM FLOORPLAN





REFLECTION #1

1. What part of your project are you most proud of so far? Why?

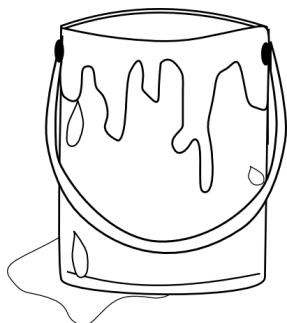
2. Did you include any furniture in your dream room that you do not currently have in your room? What made you choose that item (those items)?

3. Did you ask anyone for help or suggestions during your work so far? Explain.

Walls

What will the walls in your bedroom look like? Will you paint your walls? Wallpaper them? When buying wall coverings you will need to calculate the total surface area of all four walls. The height of your walls will be 8 feet.

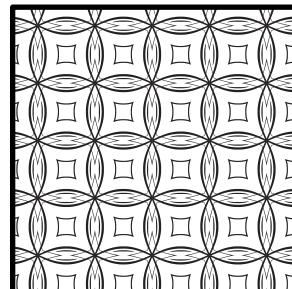
Paint



1 Gallon
\$30

Covers 300 square feet

Wallpaper



1 Roll
\$30

Covers 56 square feet

Walls

Wall 1 = length _____ x height _____ = _____ square feet

Wall 2 = length _____ x height _____ = _____ square feet

Wall 3 = length _____ x height _____ = _____ square feet

Wall 4 = length _____ x height _____ = _____ square feet

Total square feet of walls = _____

Wall treatments choice: _____

Number of gallons of paint or rolls of wallpaper needed =

Total spent on wall treatments= number of gallons/rolls needed x \$30

= _____

Floors

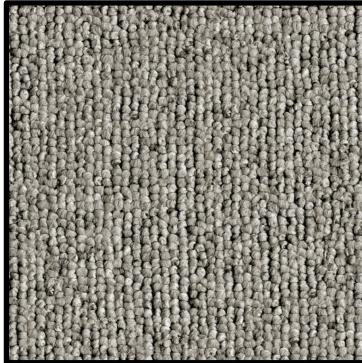
What type of flooring will you have in your dream bedroom? When buying flooring you will need to calculate the area of the floor.

Wood



\$6.00 per square foot

Plain Carpet



\$2.00 per square foot

Patterned Carpet



\$4.00 per square foot

Flooring

Dimensions of room: _____ x _____

Square feet of bedroom floor = _____ square feet

Flooring choice: _____

Cost of flooring: _____ per square foot

Total spent on flooring = cost per square foot x total square feet in room

= _____

Cost List

Below is a list of the cost for a variety of items you may want to include in your dream bedroom. Use this list to help you calculate the total amount of money you spend on your dream bedroom. Don't forget to add the cost of your wall covering and flooring! Record and add up your costs on the Dream Bedroom Expenses page.

| <u>Item</u> | <u>Cost</u> |
|----------------------|-------------|
| Twin Bed | \$270 |
| Full Bed | \$380 |
| Queen Bed | \$440 |
| King Bed | \$550 |
| Small Dresser | \$150 |
| Medium Dresser | \$200 |
| Larger Dresser | \$250 |
| Small Nightstand | \$50 |
| Medium Nightstand | \$70 |
| Large Nightstand | \$130 |
| Small Bookcase | \$70 |
| Large Bookcase | \$120 |
| Kids Desk | \$80 |
| Computer Desk-small | \$180 |
| Computer Desk- large | \$300 |
| Chair | \$180 |
| Loveseat | \$350 |
| Sofa/Couch | \$600 |
| Floor Lamp | \$40 |
| Lamp (tabletop) | \$25 |
| Beanbag | \$45 |
| Ottoman | \$150 |

| <u>Item</u> | <u>Cost</u> |
|------------------------|-------------|
| Twin Sheets | \$26 |
| Full Sheets | \$38 |
| Queen Sheets | \$44 |
| King Sheets | \$53 |
| Twin Comforter | \$56 |
| Full Comforter | \$80 |
| Queen Comforter | \$80 |
| King Comforter | \$96 |
| Pillow (bed) | \$10 |
| TV- small | \$200 |
| TV- large | \$325 |
| Mirror- full length | \$40 |
| Tabletop Mirror | \$25 |
| Armoire/Wardrobe | \$350 |
| Desk Chair | \$75 |
| Curtain (for 1 window) | \$20 |
| Rug (8' x 10') | \$200 |
| Rug (4' x 6') | \$125 |
| Wall Clock | \$30 |
| Wall Art | \$30 |
| Floor Cushion | \$40 |
| Ceiling Fan | \$125 |

Cost List

Below is a list of the cost for a variety of items you may want to include in your dream bedroom. Use this list to help you calculate the total amount of money you spend on your dream bedroom. Don't forget to add the cost of your wall covering and flooring! Record and add up your costs on the Dream Bedroom Expenses page.

| <u>Item</u> | <u>Cost</u> |
|----------------------|-------------|
| Twin Bed | \$270.79 |
| Full Bed | \$380.88 |
| Queen Bed | \$440.99 |
| King Bed | \$550.98 |
| Small Dresser | \$150.79 |
| Medium Dresser | \$200.89 |
| Larger Dresser | \$250.29 |
| Small Nightstand | \$50.49 |
| Medium Nightstand | \$70.78 |
| Large Nightstand | \$130.89 |
| Small Bookcase | \$70.49 |
| Large Bookcase | \$120.99 |
| Kids Desk | \$80.89 |
| Computer Desk-small | \$180.59 |
| Computer Desk- large | \$300.39 |
| Chair | \$180.19 |
| Loveseat | \$350.99 |
| Sofa/Couch | \$600.79 |
| Floor Lamp | \$40.79 |
| Lamp (tabletop) | \$25.49 |
| Beanbag | \$45.59 |
| Ottoman | \$150.89 |

| <u>Item</u> | <u>Cost</u> |
|------------------------|-------------|
| Twin Sheets | \$26.79 |
| Full Sheets | \$38.59 |
| Queen Sheets | \$44.79 |
| King Sheets | \$53.46 |
| Twin Comforter | \$56.25 |
| Full Comforter | \$80.79 |
| Queen Comforter | \$80.58 |
| King Comforter | \$96.65 |
| Pillow (bed) | \$10.47 |
| TV- small | \$200.99 |
| TV- large | \$325.37 |
| Mirror- full length | \$40.76 |
| Tabletop Mirror | \$25.68 |
| Armoire/Wardrobe | \$350.97 |
| Desk Chair | \$75.86 |
| Curtain (for 1 window) | \$20.18 |
| Rug (8' x 10') | \$200.56 |
| Rug (4' x 6') | \$125.88 |
| Wall Clock | \$30.92 |
| Wall Art | \$30.65 |
| Floor Cushion | \$40.79 |
| Ceiling Fan | \$125.28 |

Dream Bedroom Expenses

For each item you are putting into your dream bedroom record the cost of the item and update the overall total spent column each time you "buy" something new.

EXAMPLE - Dream Bedroom Expenses- **EXAMPLE**

For each item you are putting into your dream bedroom record the cost of the item and update the overall total spent column each time you "buy" something new.

| Item | Quantity Purchased | Cost (each) | Total Spent on This Item | Total Money Spent Overall |
|-----------------|--------------------|-------------|--------------------------|---------------------------|
| Queen Bed | 1 | \$440 | \$440 | \$440 |
| Medium Dresser | 1 | \$200 | \$200 | \$640 |
| Lamp (tabletop) | 2 | \$25 | \$50 | \$690 |
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REFLECTION #2

1. How much money did you spend on your dream bedroom expenses? Would you spend that much to design your bedroom in real life? Why or why not?

2. What part of the project so far has been the hardest? Why?

3. Draw/color a swatch of your wall treatment (paint color or wallpaper design) and floor covering (wood style or carpet color/pattern) below.

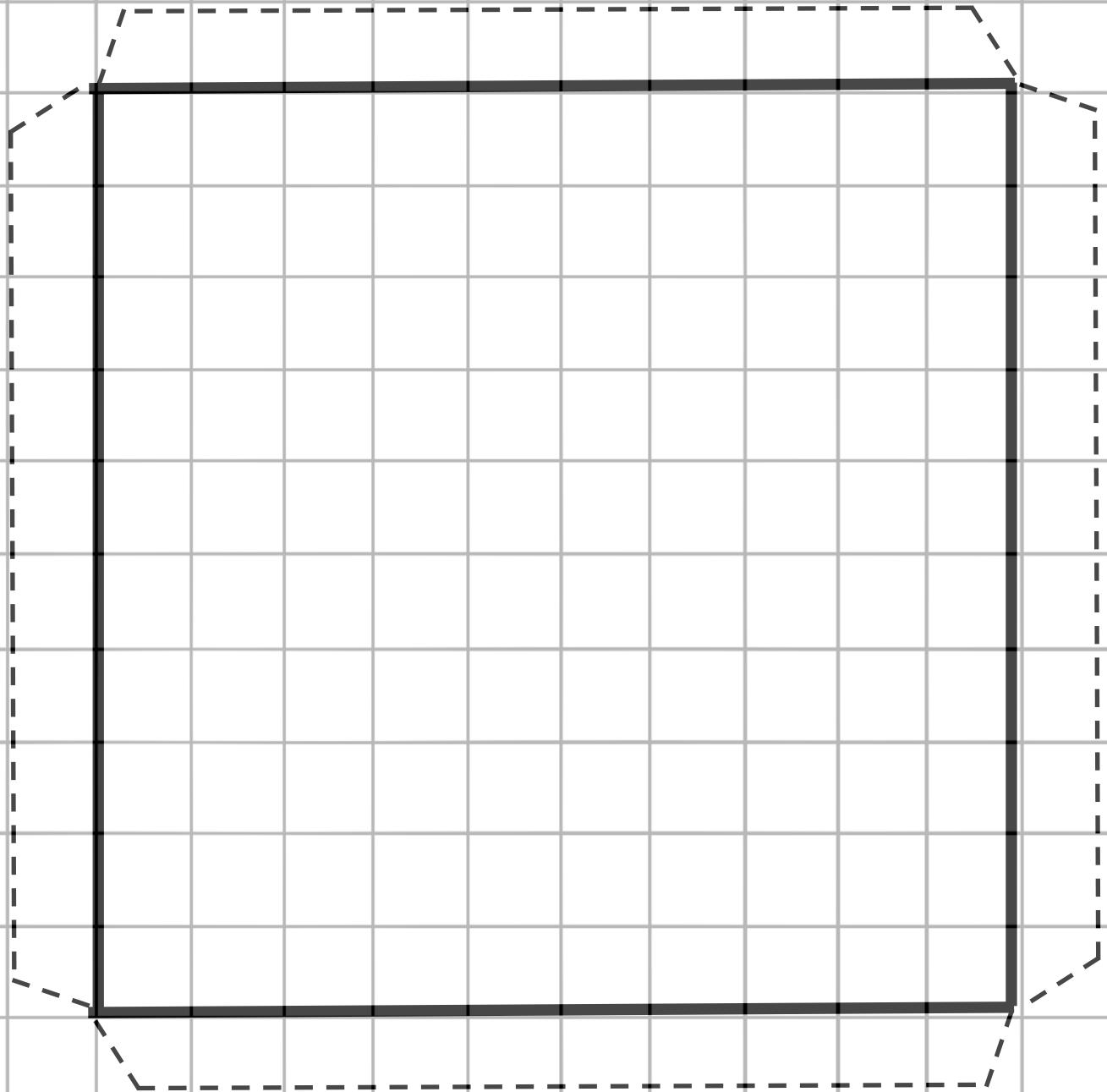


Walls

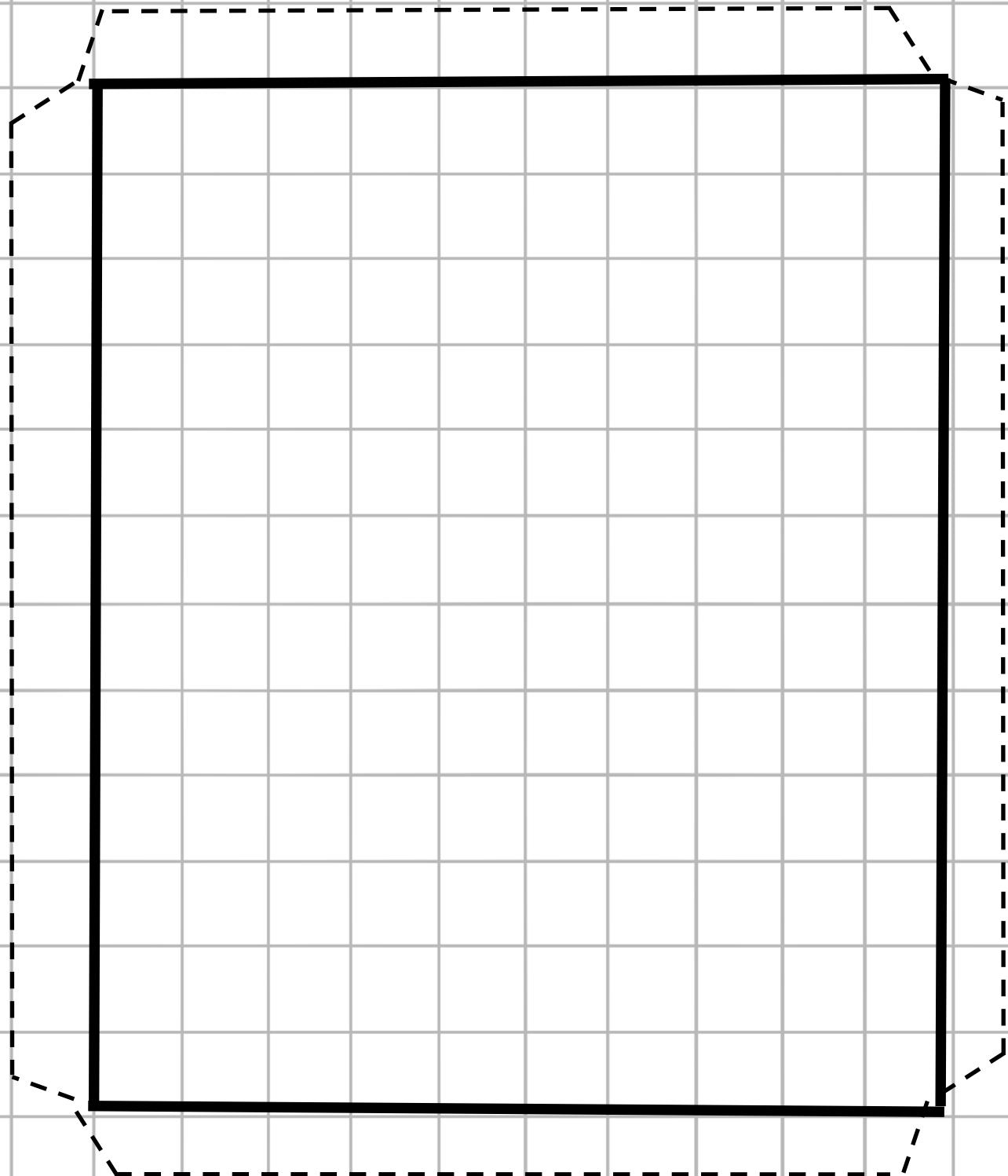


Floors

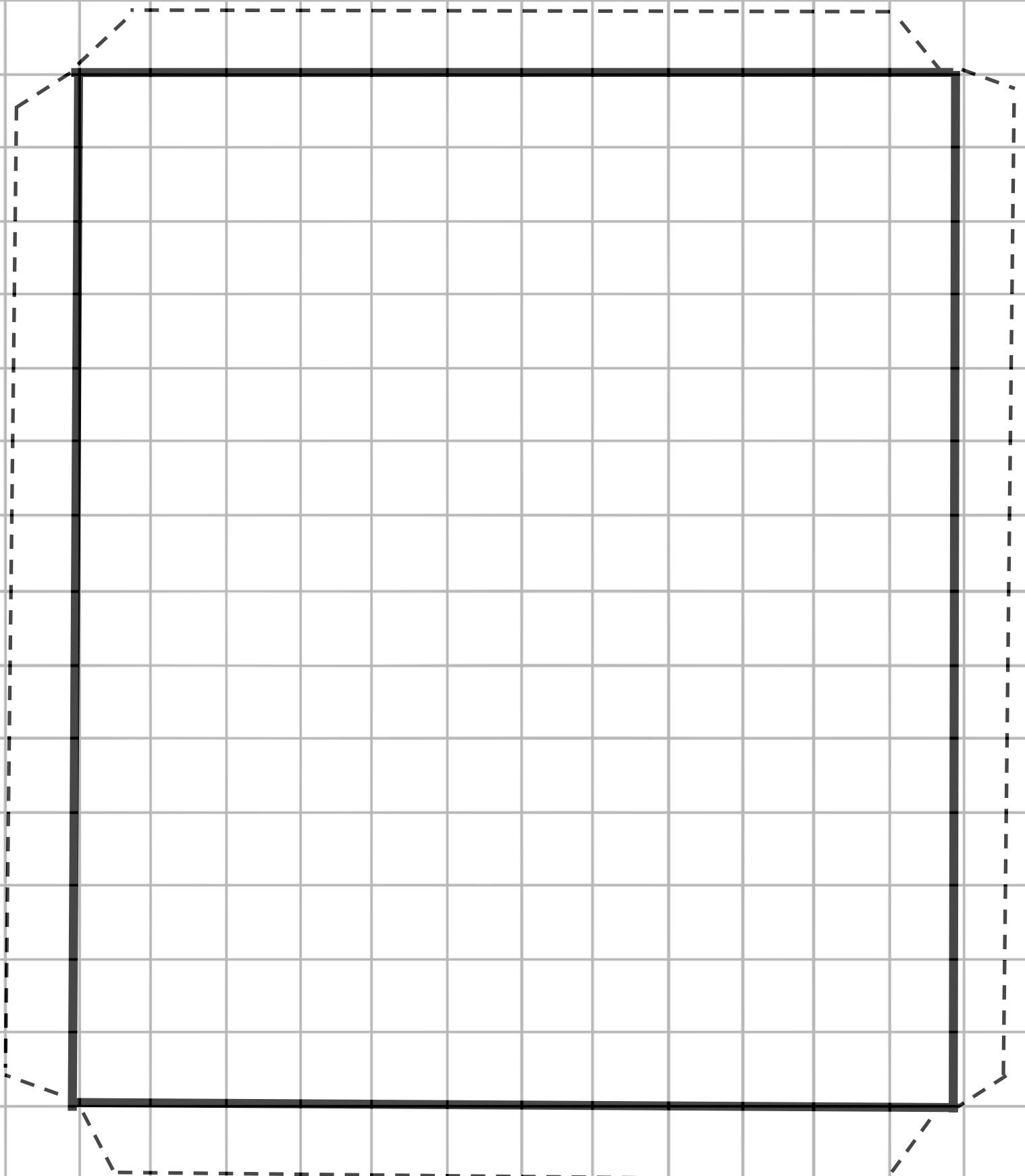
10' x 10' room floor



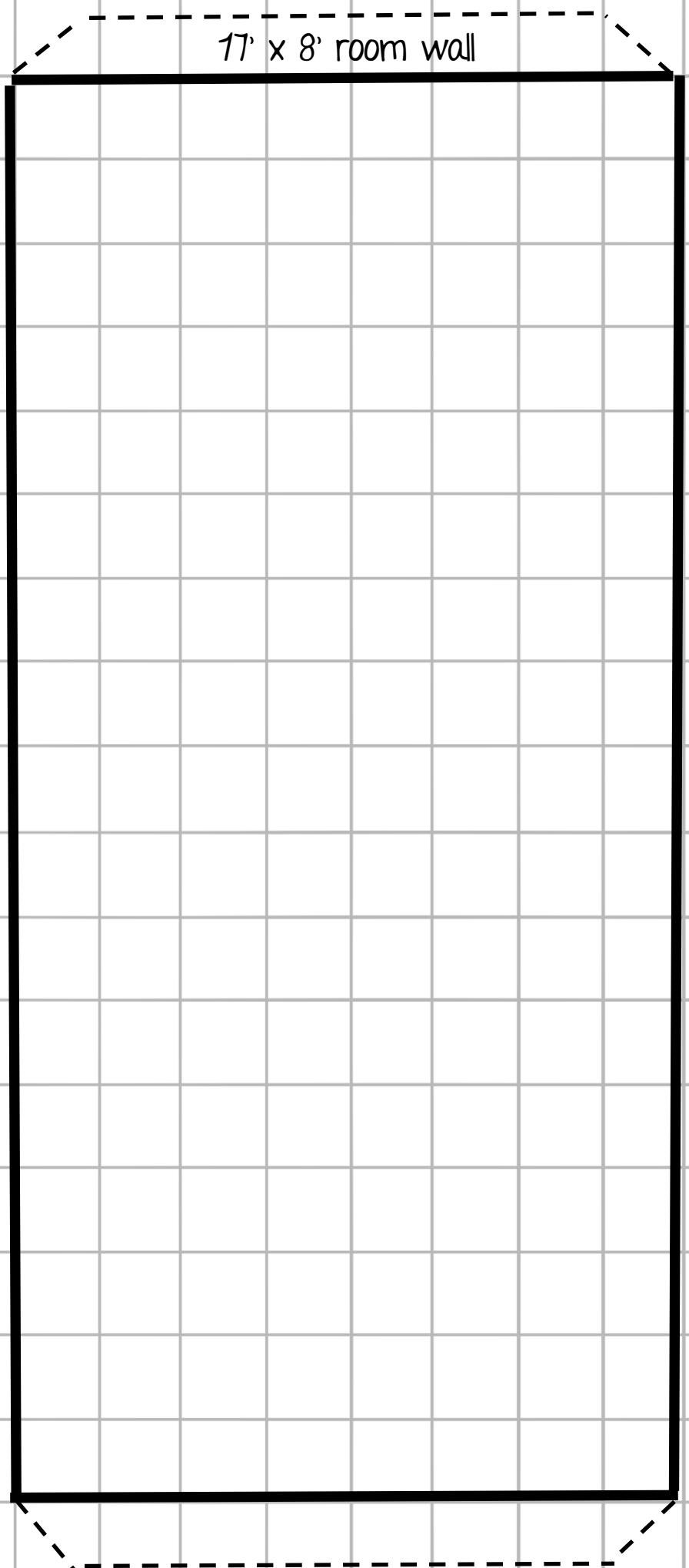
10' x 12' room floor

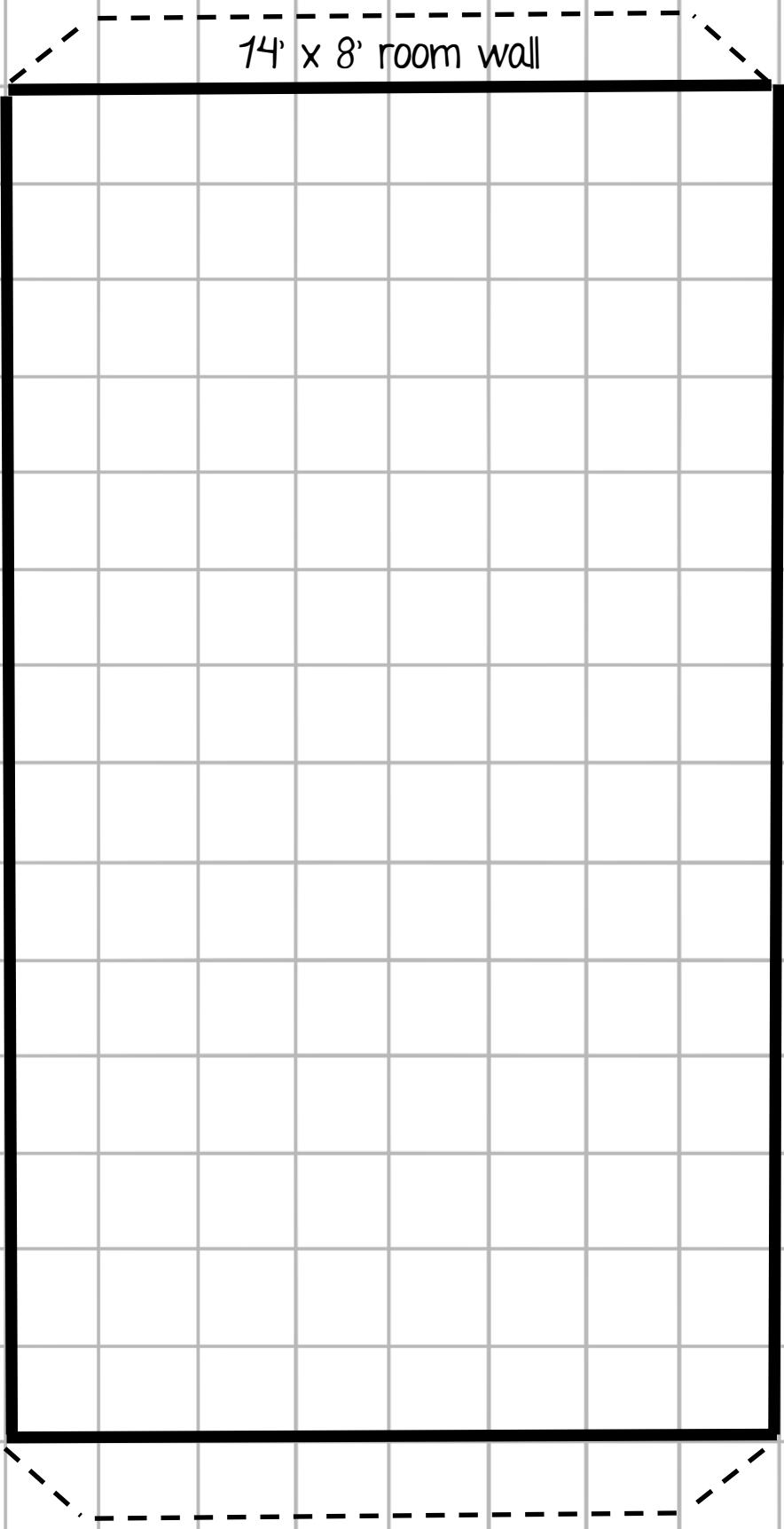


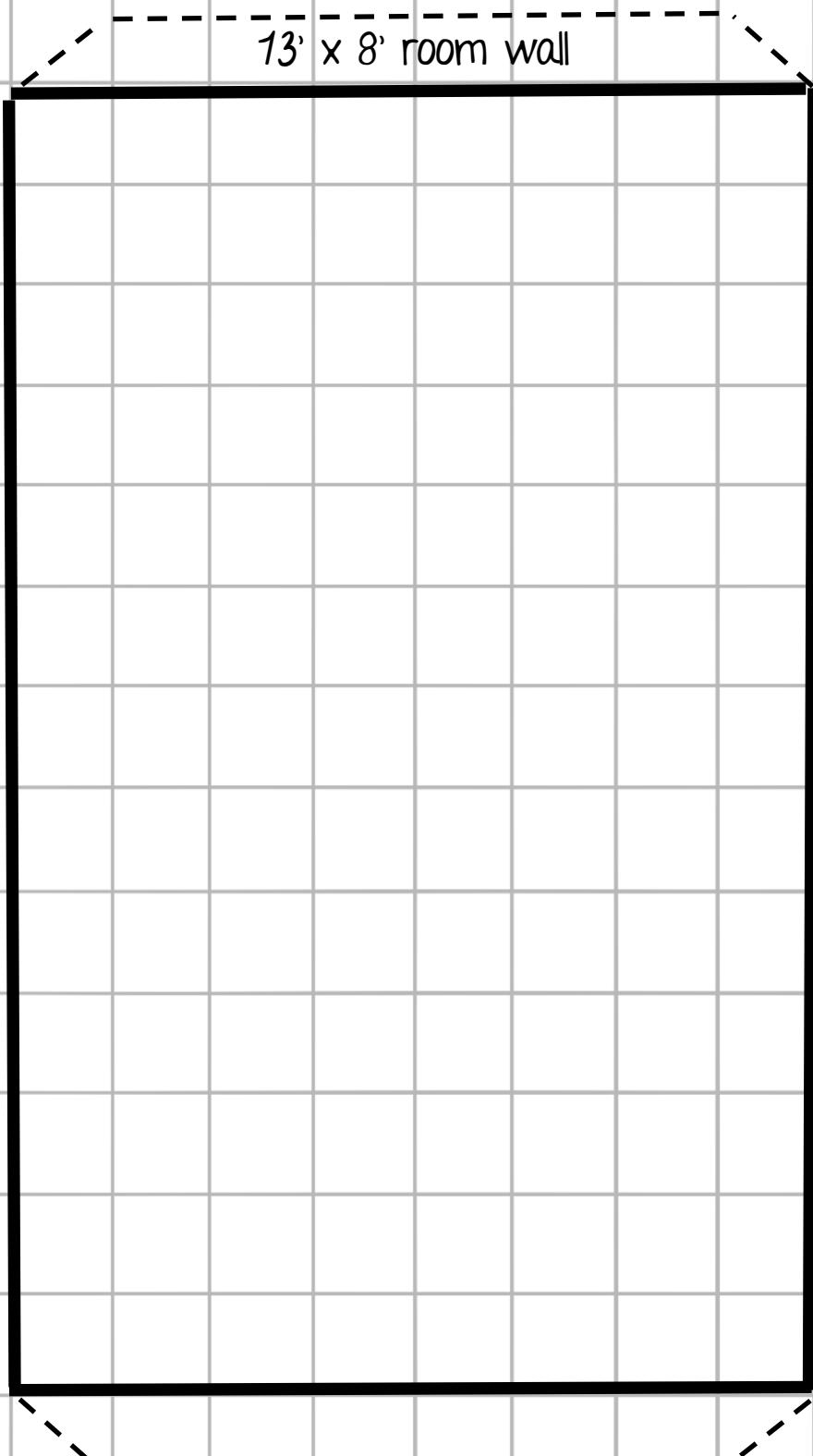
12' x 14' room floor

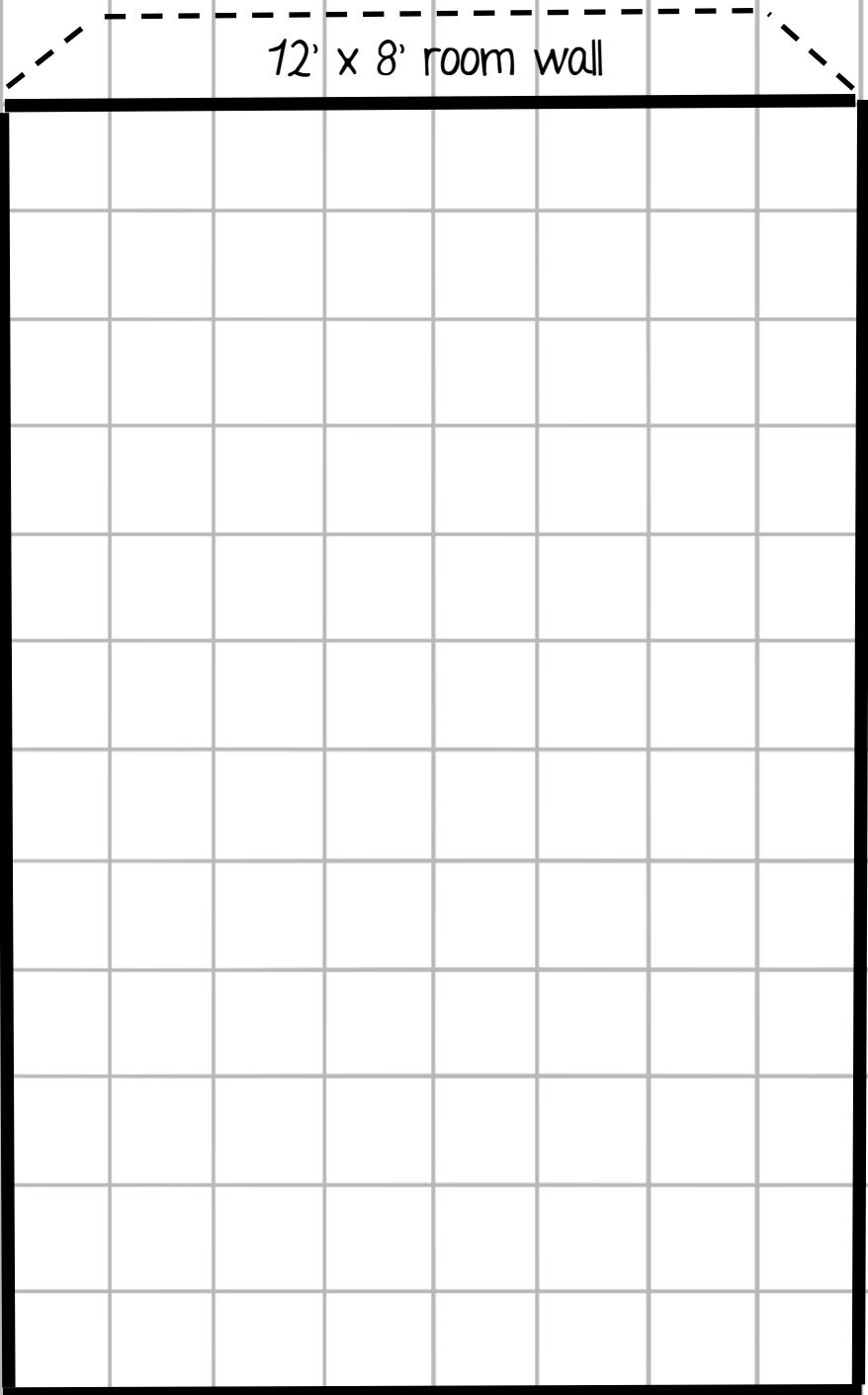


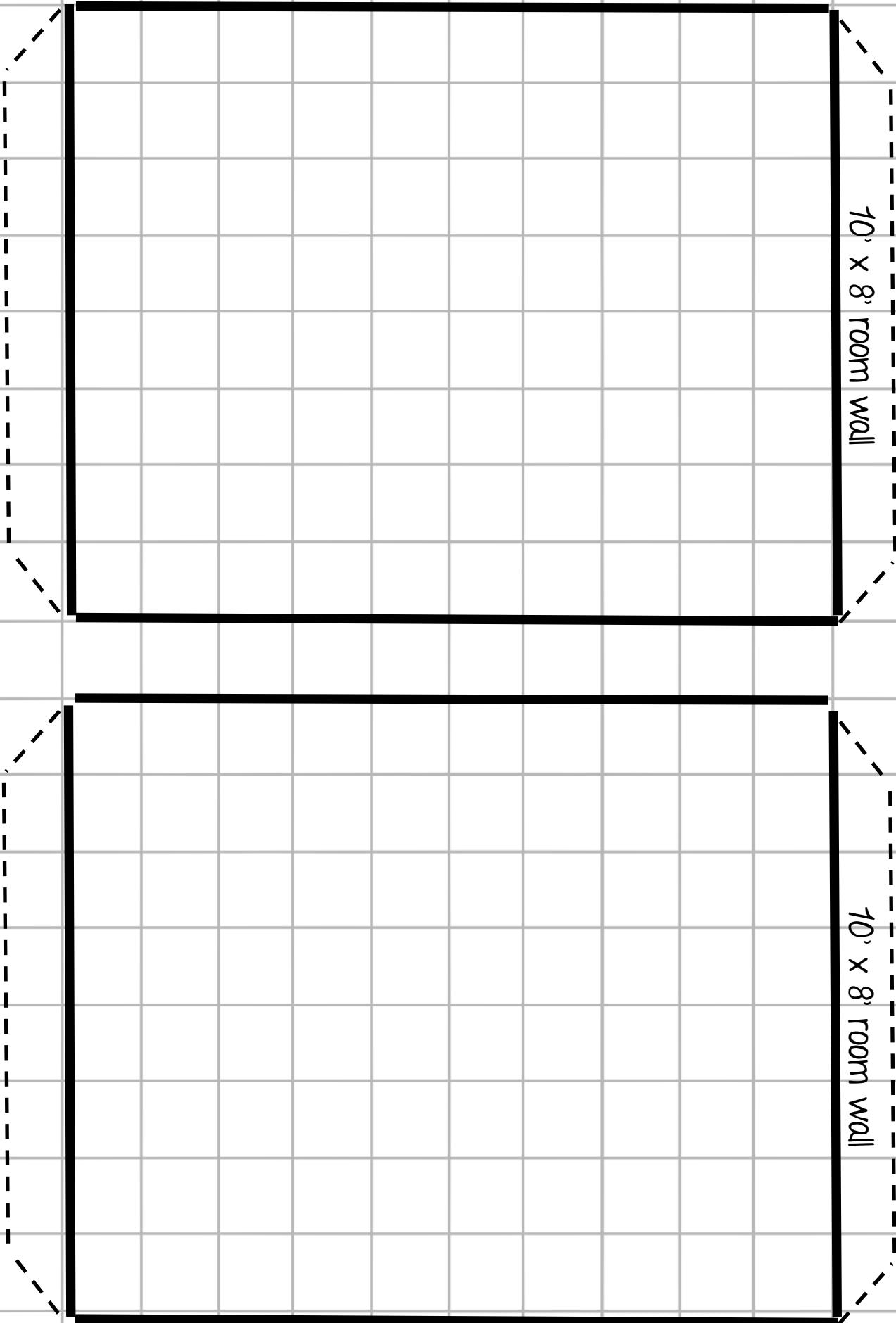
13' x 17' room floor



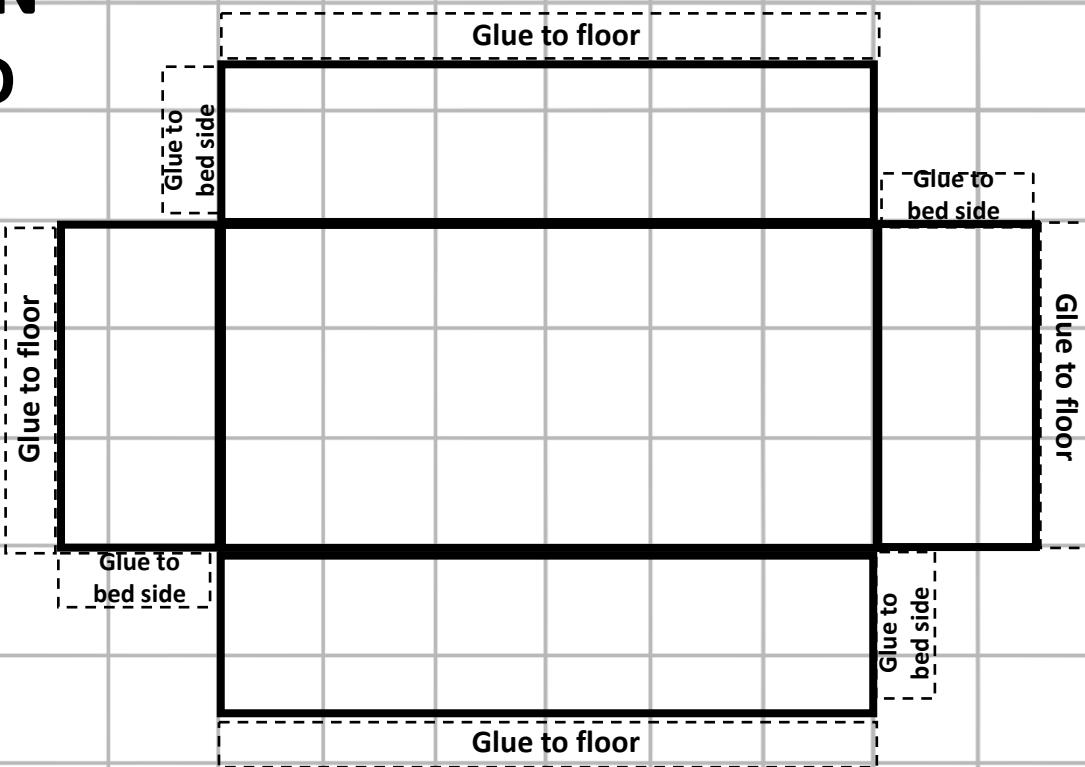




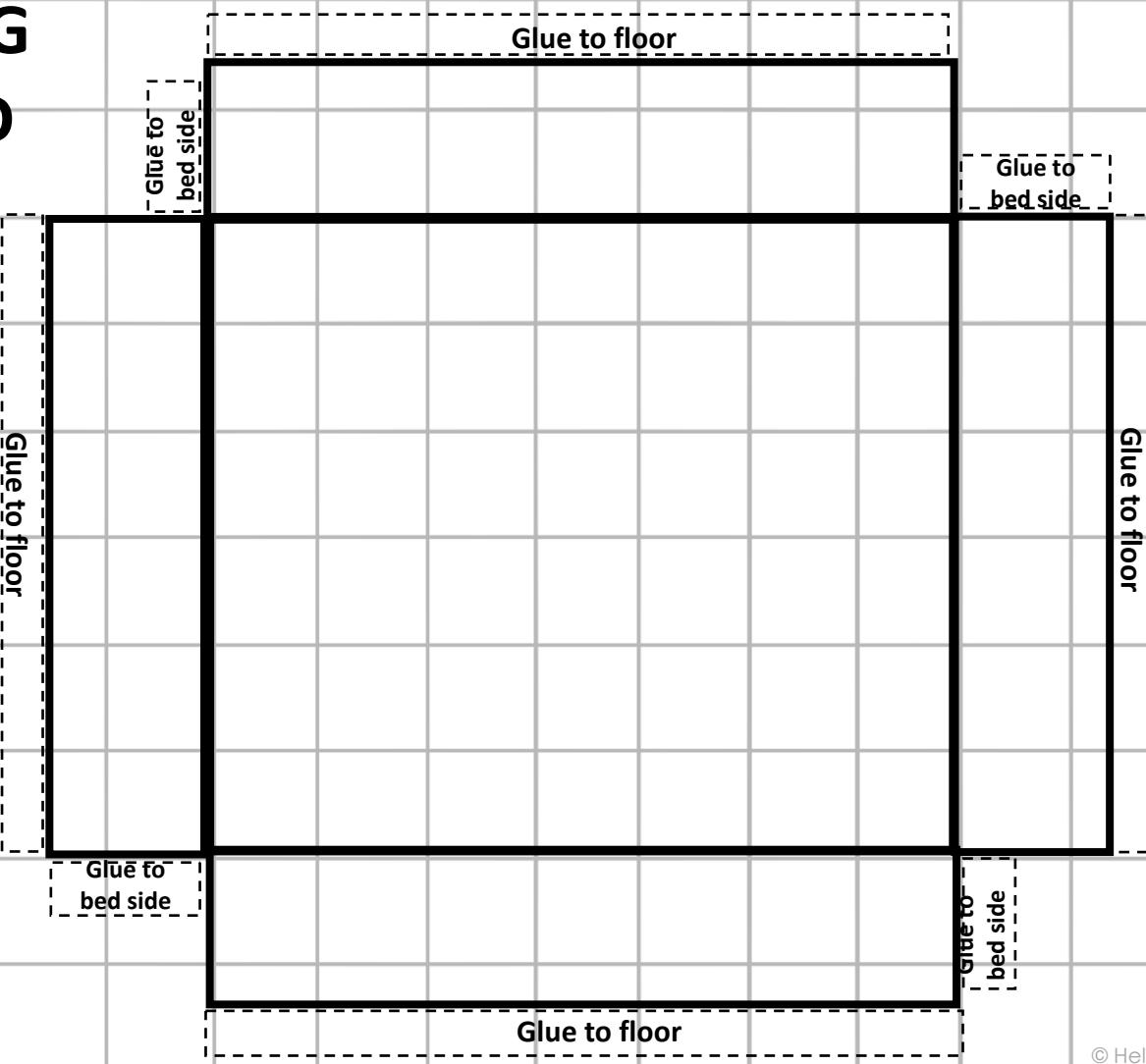




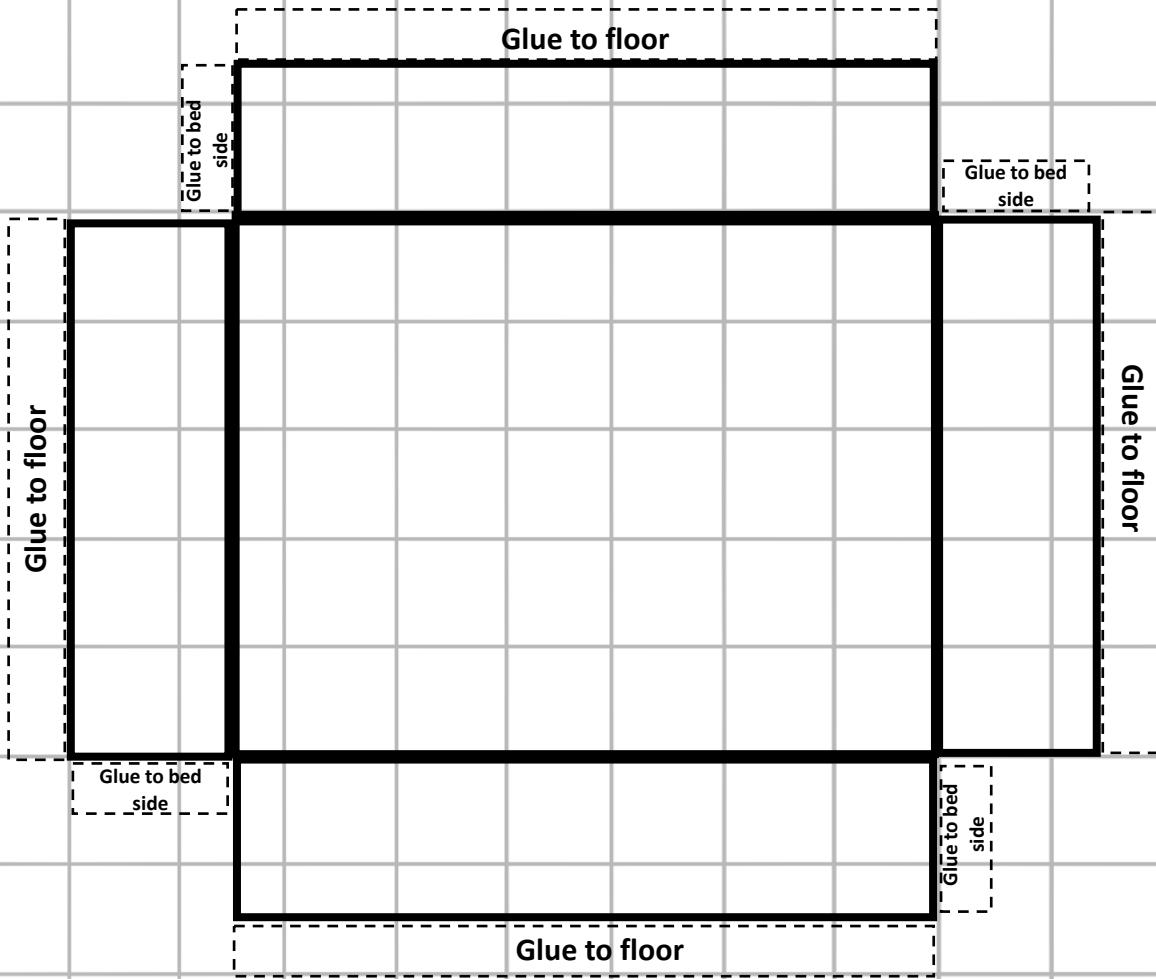
TWIN BED



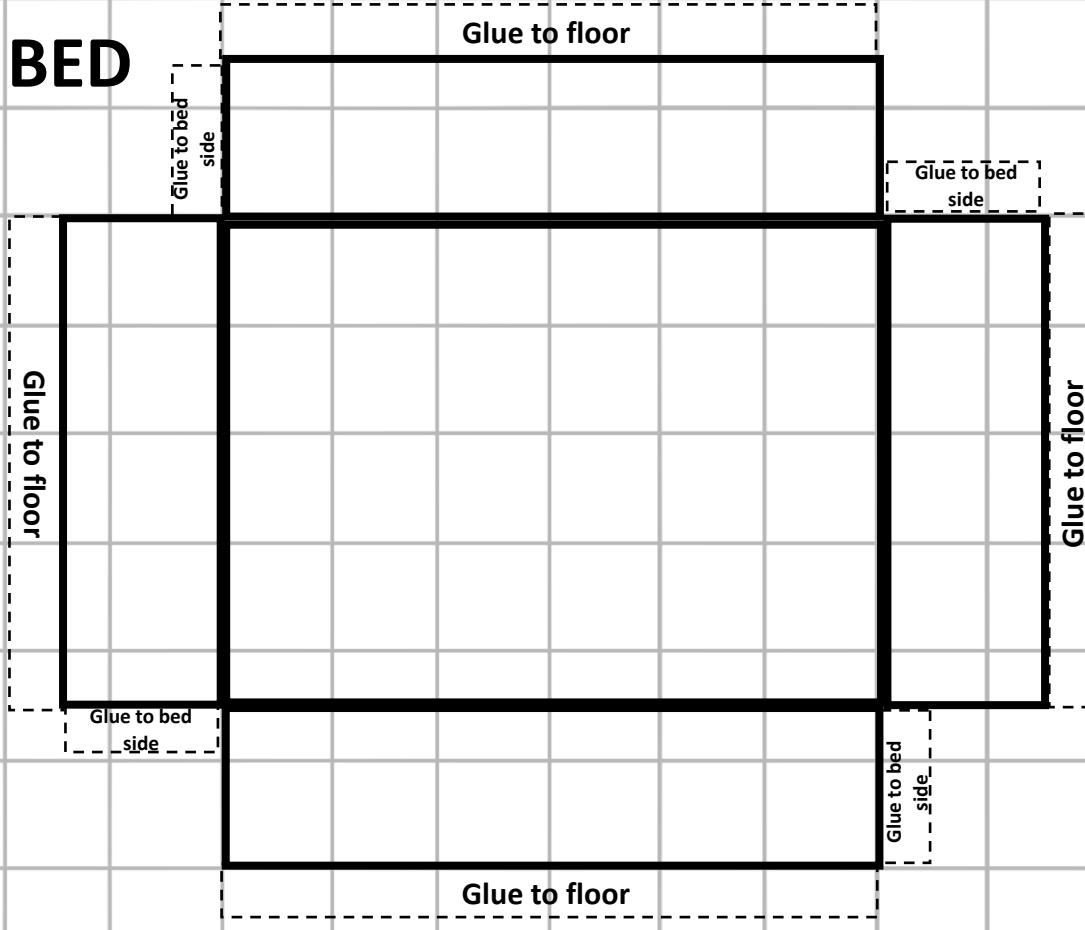
KING BED



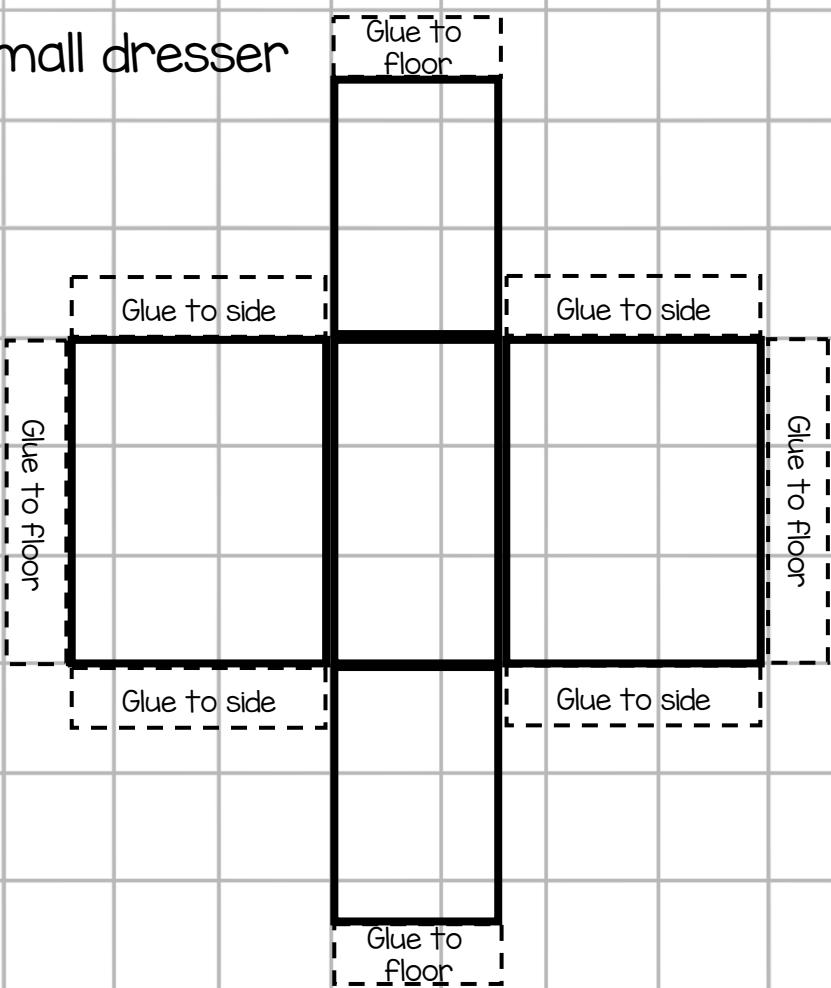
QUEEN BED



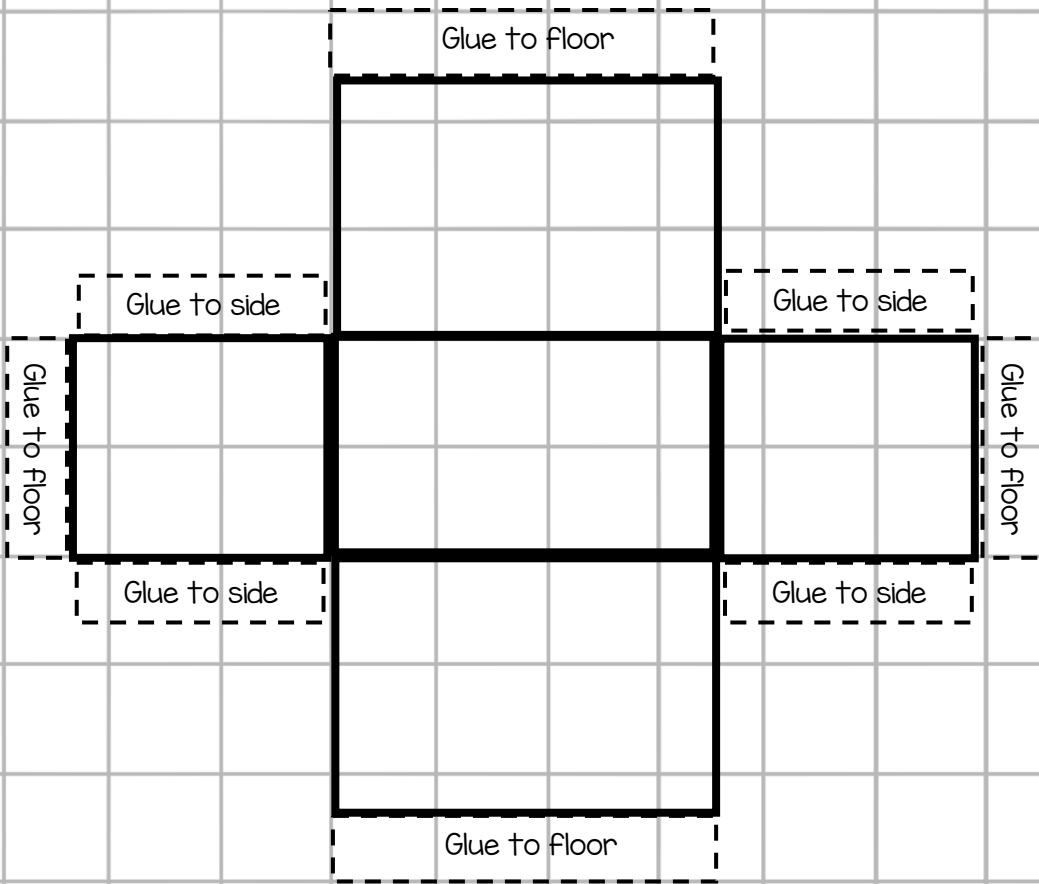
FULL BED



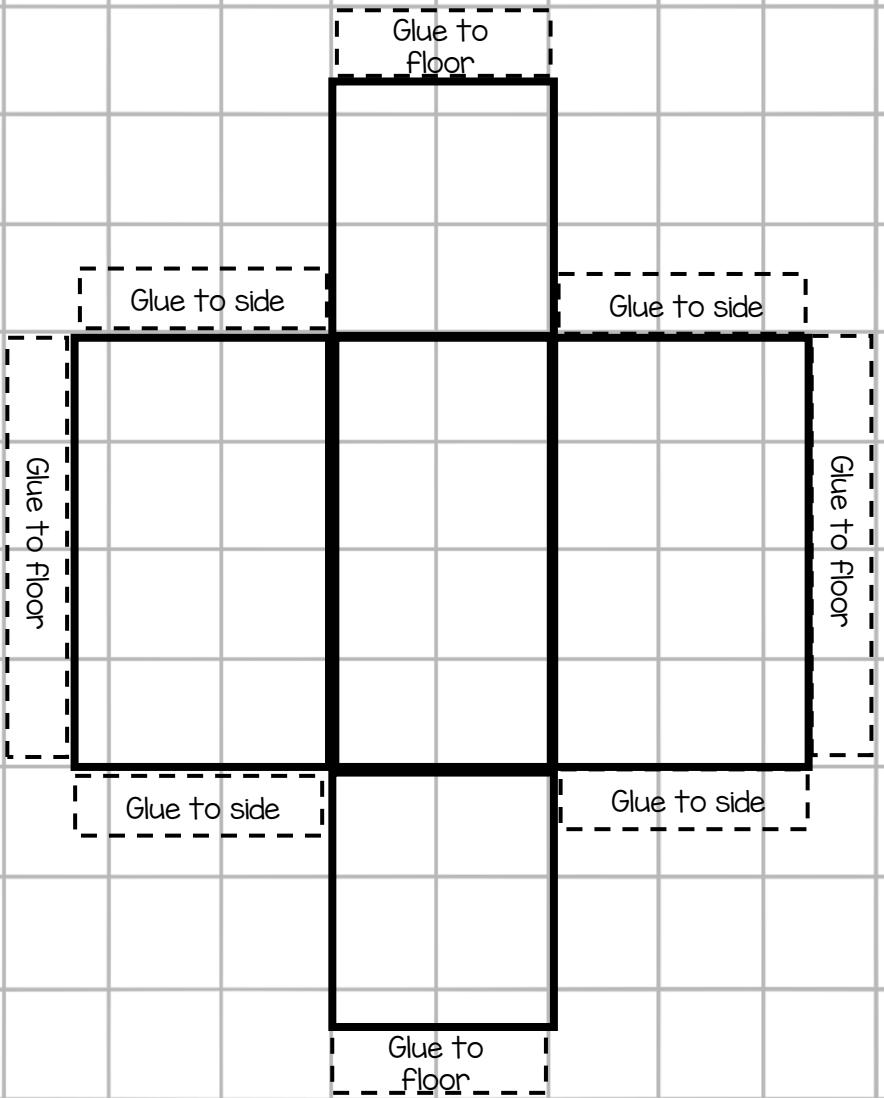
Small dresser



Medium dresser



Large dresser



Blank paper to make additional furniture templates

METRIC Measurement pages

NOTES ON METRIC UNITS PAGES

The following pages contain the same content from the project, but use the metric measurement system.

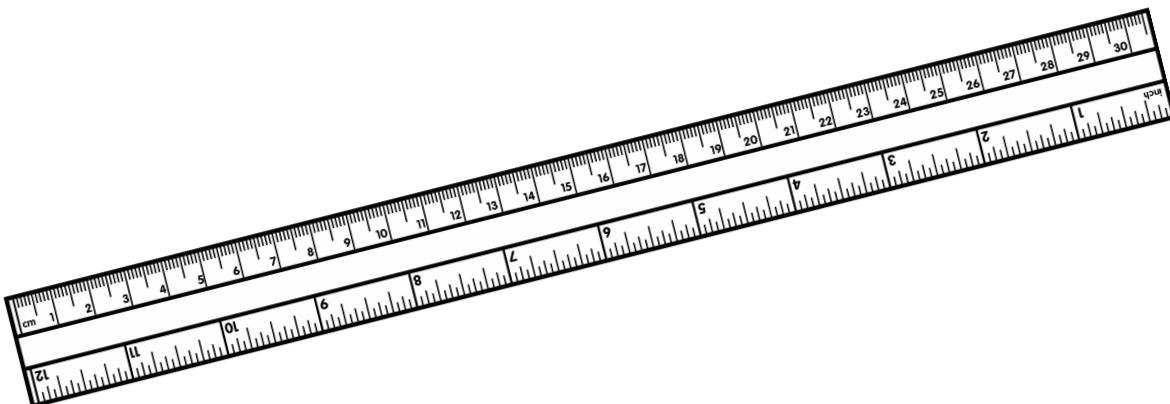
***Please swap out these specific earlier pages with the following pages if you are using the metric system to complete this project with your class.

Because meters are larger than feet, I have increased the grid size used in the floorplan page and the pages for the floor, walls, and bed templates.

***If your students are drawing floorplans using the metric system and/or creating a 3D model using the metric system measurements, please use the grid and templates included in this section of the resource.

I have included a blank grid page that corresponds to the grid size of the walls, floor and bed templates. You can use this for students to make their own net to create 3D models of any additional furniture they want to include in their room.

All other pages from the resource are universal and do not refer to a specific measurement system.

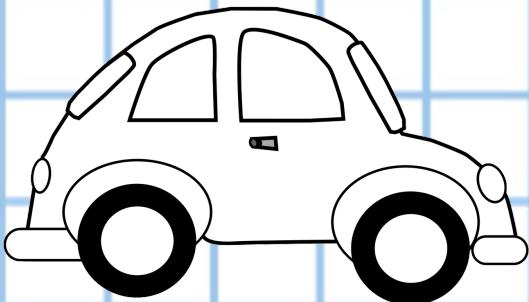


Scale Factor

Scale factor is the ratio of the length/height of an item in a drawing to the length/height of that item in real life. For this project we will use the scale factor 1 square : 1 meter

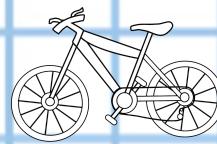
The car below is 5 squares long. In real life it would be 5 meters long.

Directions: Find the lengths and heights of the items shown below. Remember, 1 square = 1 meter.

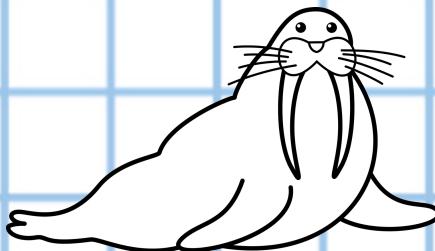


Car in drawing = 5 squares long

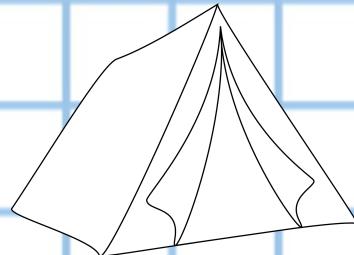
Car in real life = 5 meters long



Bike =
_____ meters long



Walrus =
_____ meters long



Tent =
_____ meters tall



Gnome =
_____ meters tall

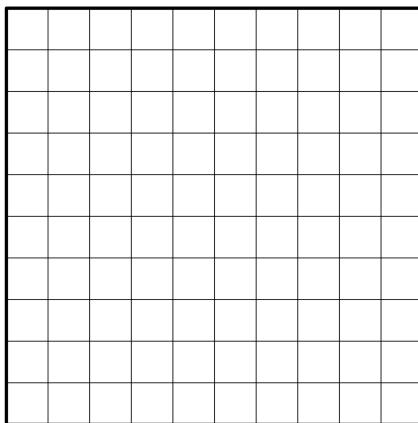
Draw a rectangle that is
6 meters x 3 meters in real
life in the space below

Basic Bedroom Features- Walls, Doors, and Windows

- I. Choose the size of your bedroom. Your four bedroom size choices are below. Circle the bedroom size you are choosing.

4 m x 5 m 5 m x 6 m 6 m x 7 m 7 m x 9 m

2. The perimeter of my bedroom is _____
3. The area of my bedroom is _____
4. Draw the walls of your bedroom on your graph paper. Remember, one meter is equal to one square on the grid.

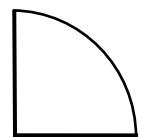
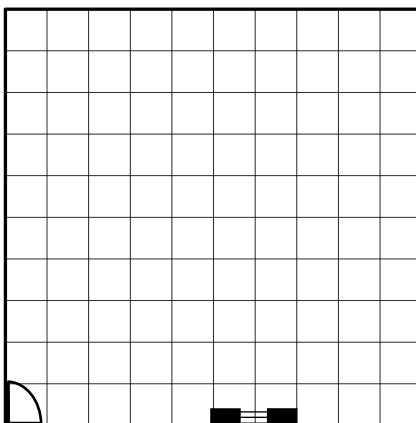


Example

10 m x 10 m bedroom

5. A standard door is one meter wide. Decide where you would like your bedroom door to be located. When you decide where you want your door, draw it on your bedroom plan using symbol for a door.

Example



Door symbol

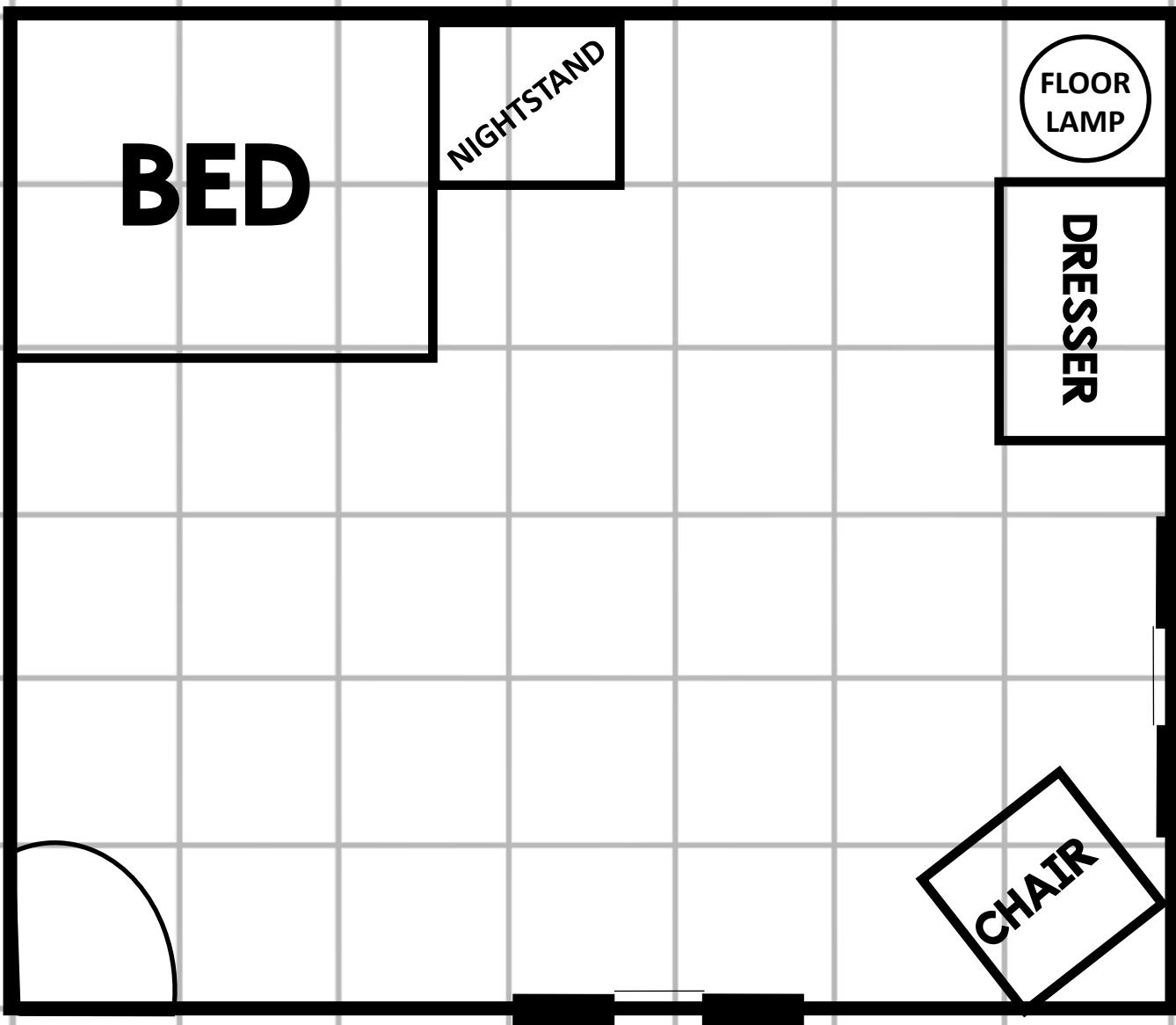


Window symbol

6. A standard window is one meter wide. Decide how many windows you want in your room and add them to your bedroom plan using the symbol for a window..

SAMPLE

6 m x 7 m Room Floor Plan



MY BEDROOM FLOORPLAN

Required Furniture

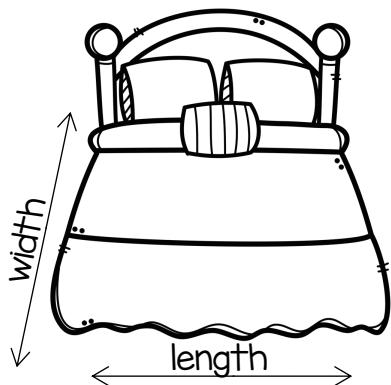
Different sizes of beds, dressers and nightstands are shown below. For each item, choose the size you would like and add it to the furniture calculations sheet.

Calculate the area and perimeter for each item.

Then add the items onto your bedroom plan.

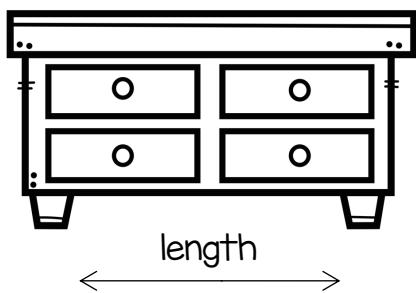
Remember, 1 meter = 1 square on your bedroom plan.

Bed



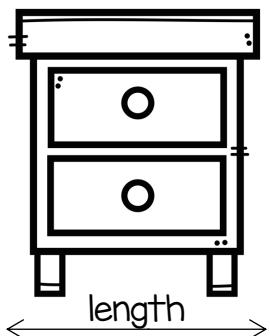
| Size | Width | Length |
|-------|------------|------------|
| Twin | 2 meters | 1 meter |
| Full | 2 meters | 1.5 meters |
| Queen | 2.5 meters | 1.5 meters |
| King | 2.5 meters | 2 meters |

Dresser



| Size | Width | Length |
|--------|-----------|------------|
| Small | 0.5 meter | 1 meter |
| Medium | 1 meter | 1 meter |
| Large | 1 meter | 1.5 meters |

Nightstand



| Size | Width | Length |
|--------|-----------|------------|
| Small | 0.5 meter | 0.5 meter |
| Medium | 0.5 meter | 1 meter |
| Large | 1 meter | 1.5 meters |

Optional Furniture

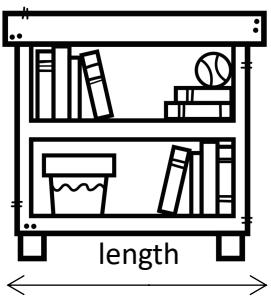
Different sizes of bookcases, desks, chairs and couches are shown below. For each item you would like, choose the size you want and add it to the furniture calculations sheet.

Calculate the area and perimeter for each item.

Then add the items onto your bedroom plan.

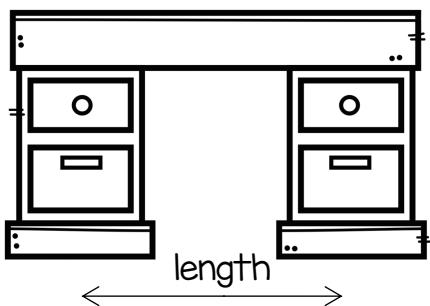
Remember, 1 meter = 1 square on your bedroom plan.

Bookcase



| Size | Width | Length |
|-------|---------|----------|
| Small | 1 meter | 1 meter |
| Large | 1 meter | 2 meters |

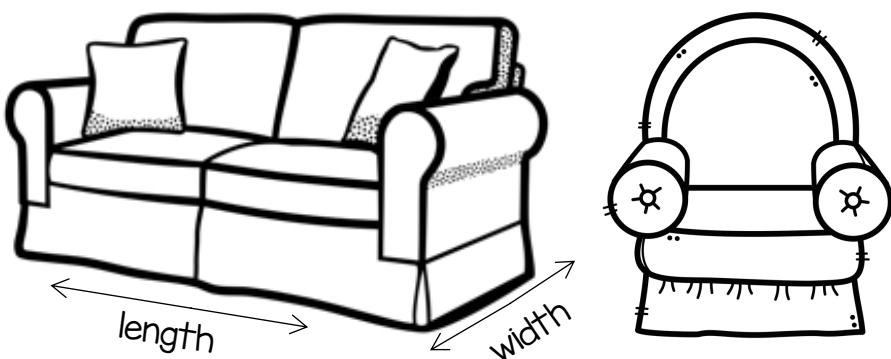
Desk



| Size | Width | Length |
|----------------------|-----------|----------|
| Kids Desk | 0.5 meter | 1 meter |
| Computer desk- small | 0.5 meter | 1 meter |
| Computer desk-large | 1 meter | 2 meters |

Chair, Loveseat or Couch

| Size | Width | Length |
|----------|---------|------------|
| Chair | 1 meter | 1 meter |
| Loveseat | 1 meter | 1.5 meters |
| Couch | 1 meter | 2 meters |

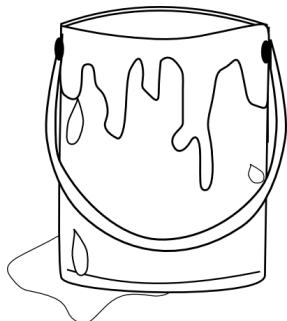


*If you would like to include items not on this page, you will need to do some additional research to find the dimensions of those items.

Walls

What will the walls in your bedroom look like? Will you paint your walls? Wallpaper them? When buying wall coverings you will need to calculate the total surface area of all four walls. The height of your walls will be 3 meters.

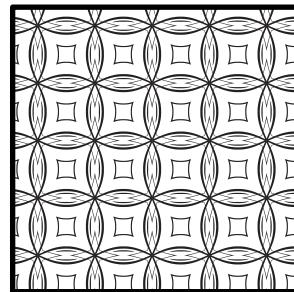
Paint



1 Liter
\$15

Covers 6 square meters

Wallpaper



1 Roll
\$45

Covers 18 square meters

Walls

Wall 1 = length _____ x height _____ = _____ square meters

Wall 2 = length _____ x height _____ = _____ square meters

Wall 3 = length _____ x height _____ = _____ square meters

Wall 4 = length _____ x height _____ = _____ square meters

Total square meters of walls = _____

Wall treatments choice: _____

Number of liters of paint or rolls of wallpaper needed =

Total spent on wall treatments= number of gallons/rolls needed x \$15 or
\$45
= _____

Floors

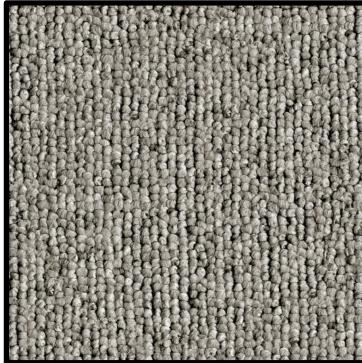
What type of flooring will you have in your dream bedroom? When buying flooring you will need to calculate the area of the floor.

Wood



\$25.00 per square meter

Plain Carpet



\$14.00 per square meter

Patterned Carpet



\$20.00 per square meter

Flooring

Dimensions of room: _____ x _____

Square meters of bedroom floor = _____ square meters

Flooring choice: _____

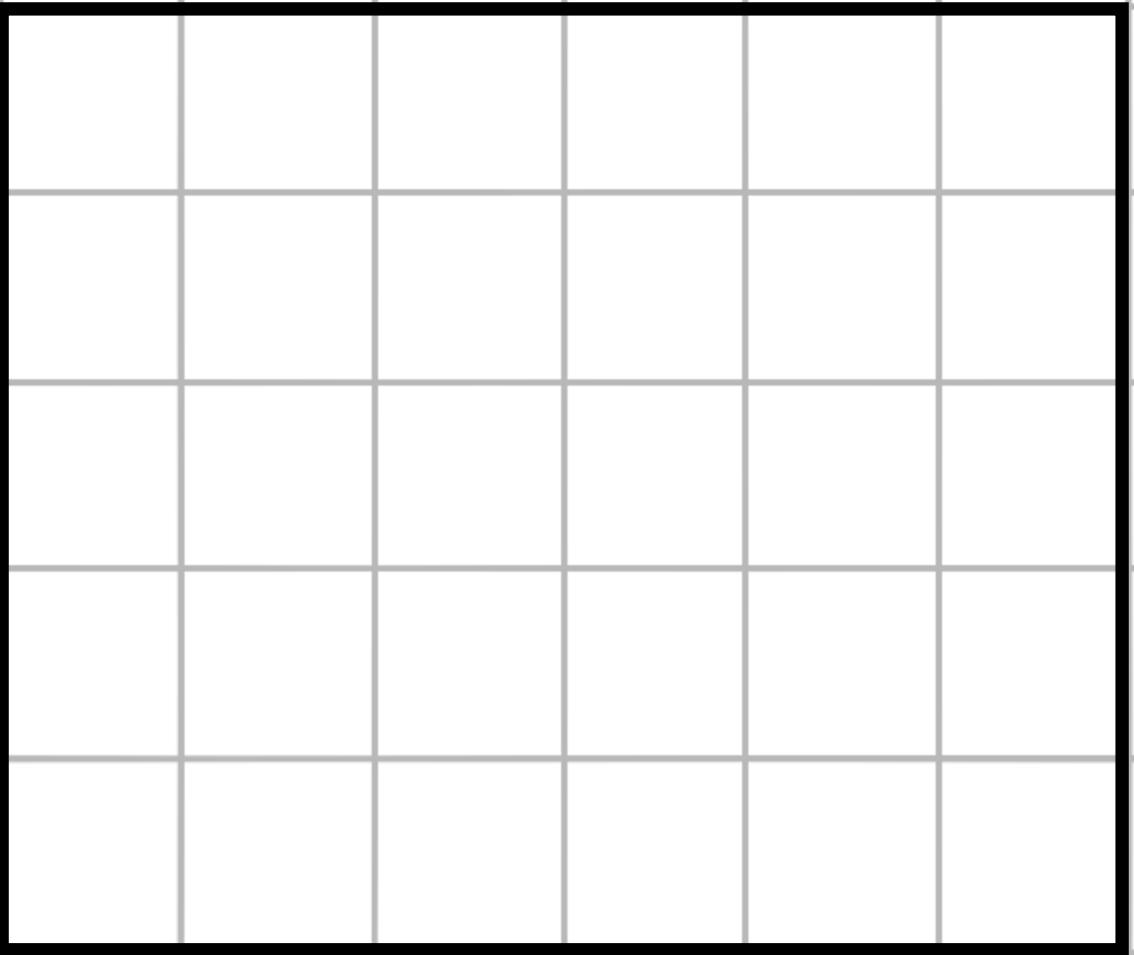
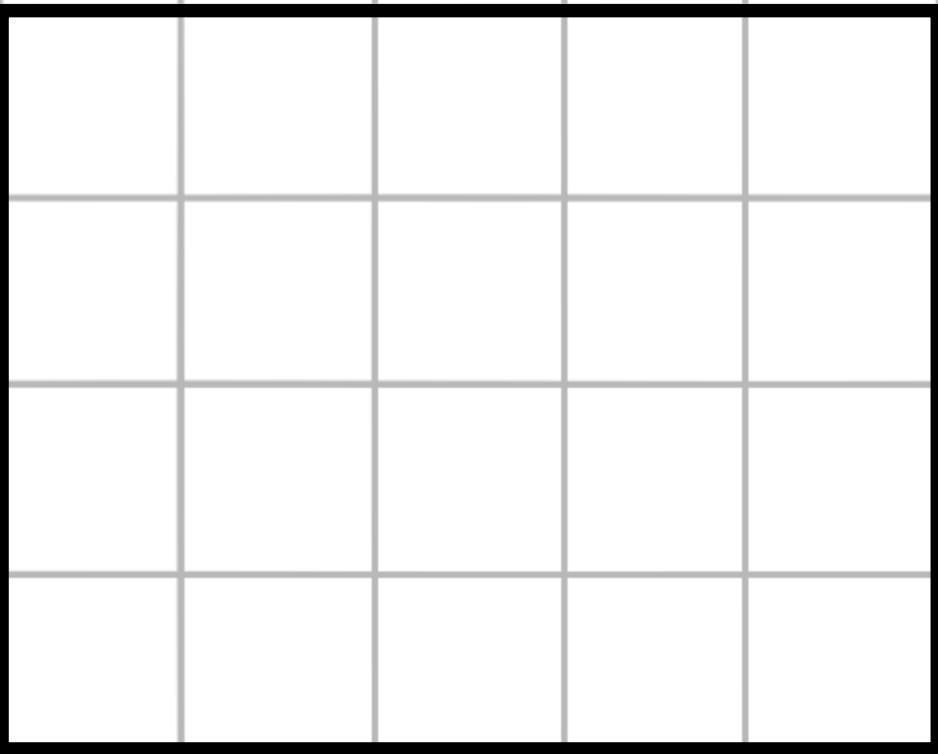
Cost of flooring: _____ per square meter

Total spent on flooring = cost per square meters x total square meters in room

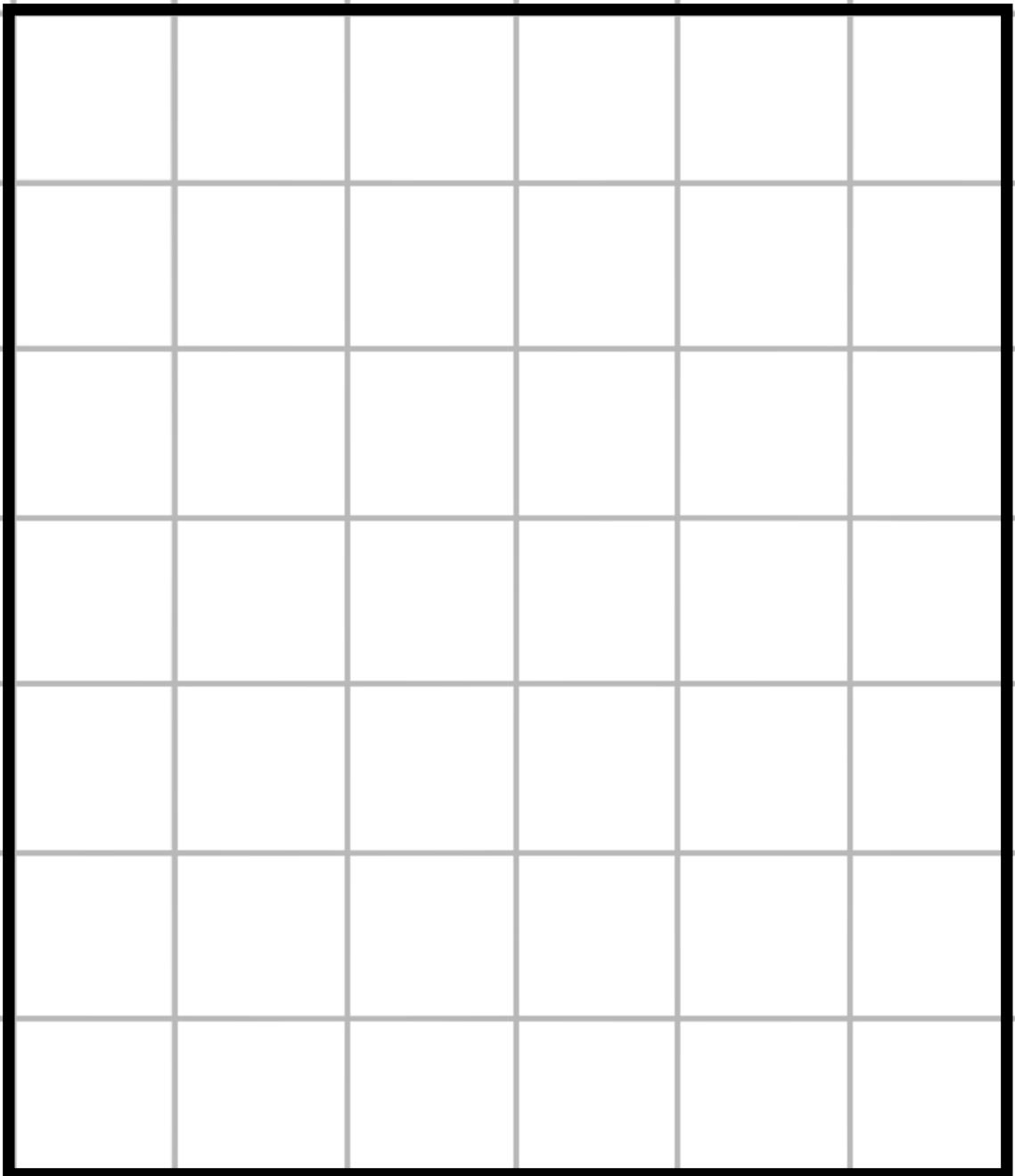
= _____

5 m x 6 m floor

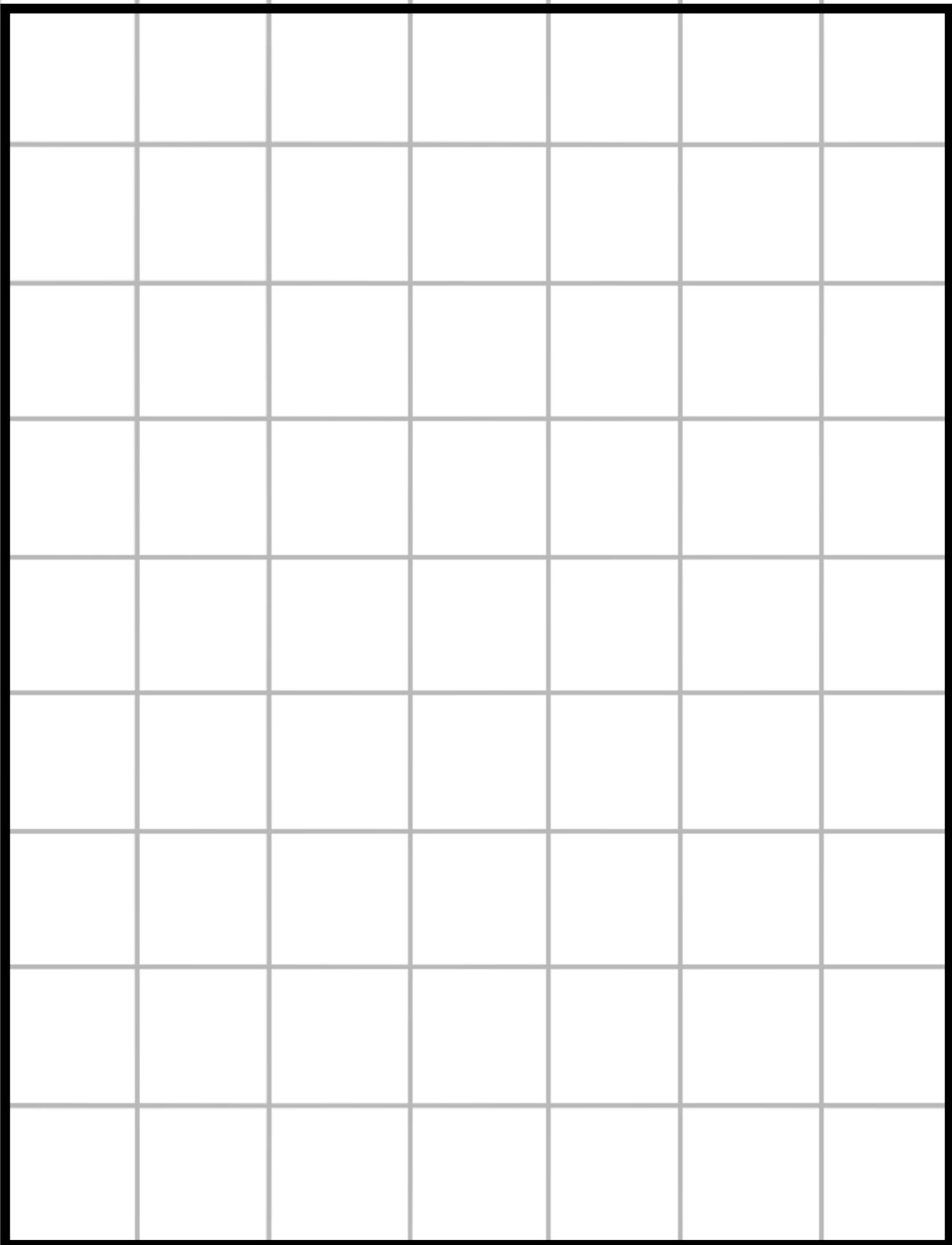
4 m x 5 m floor



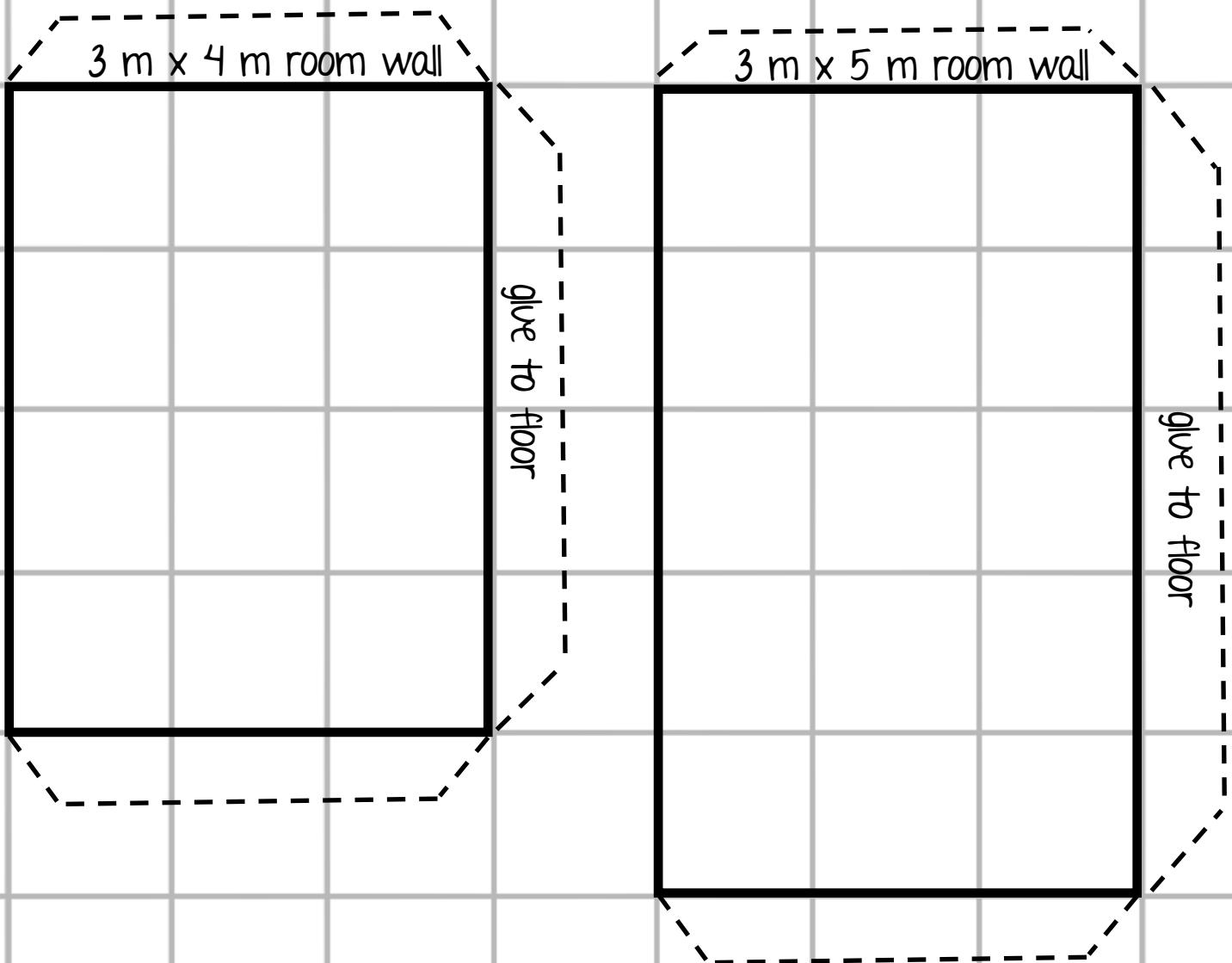
6 m x 7 m floor



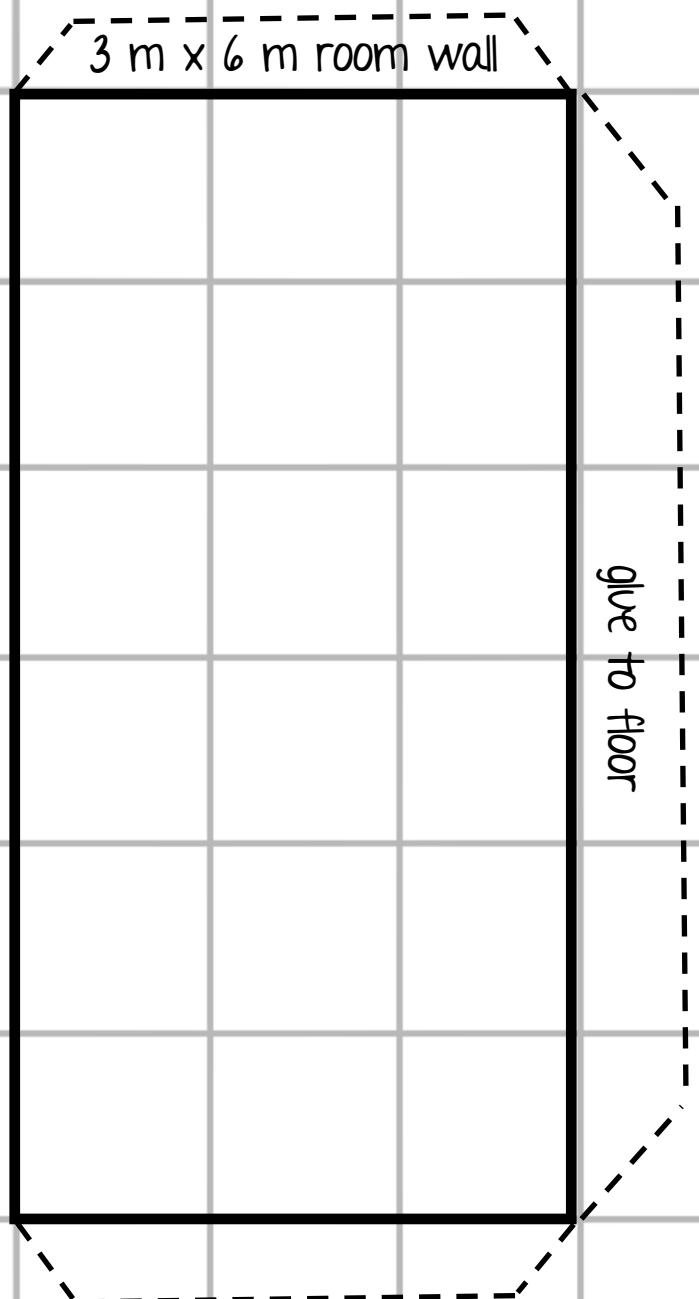
7 m × 9 m floor



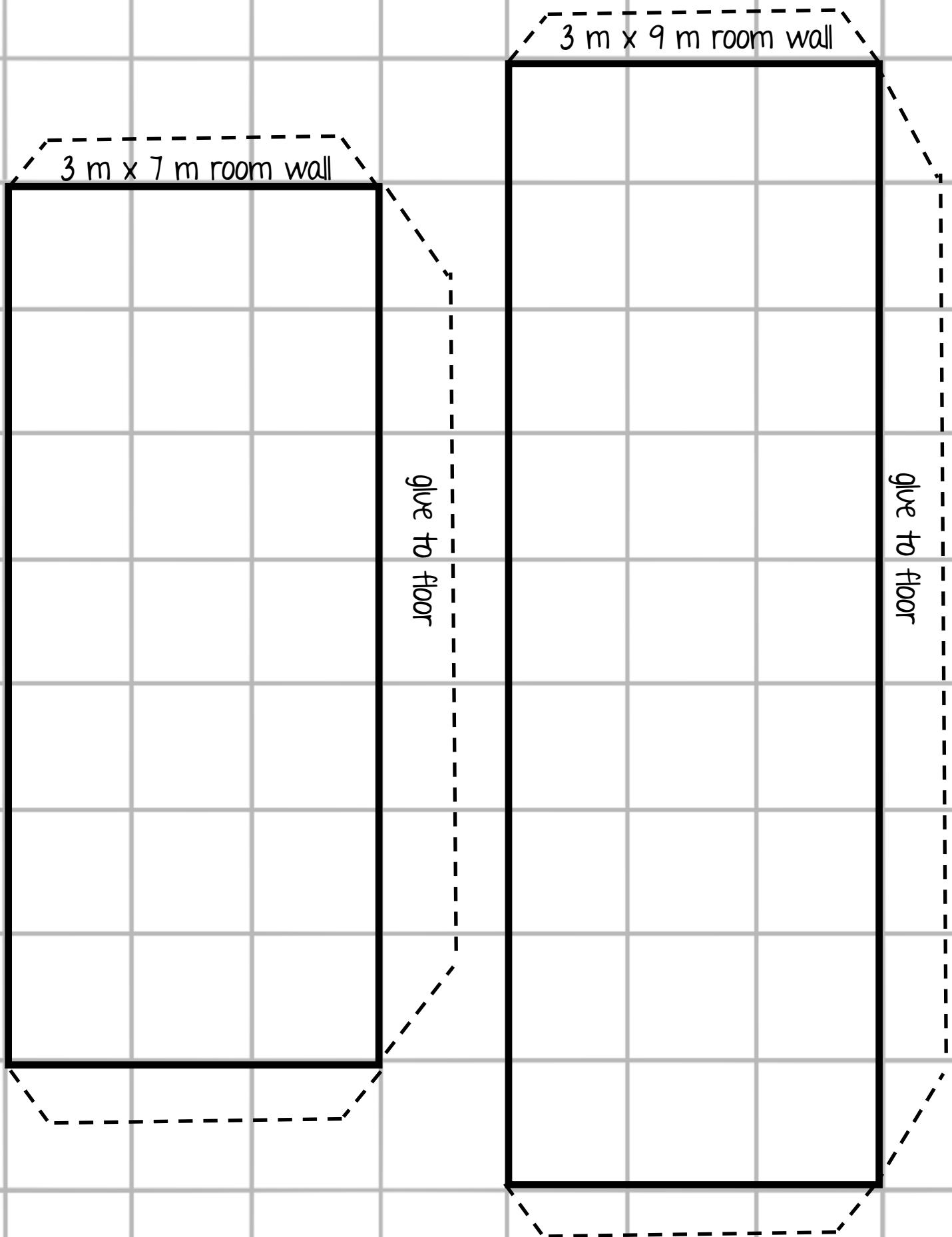
WALLS



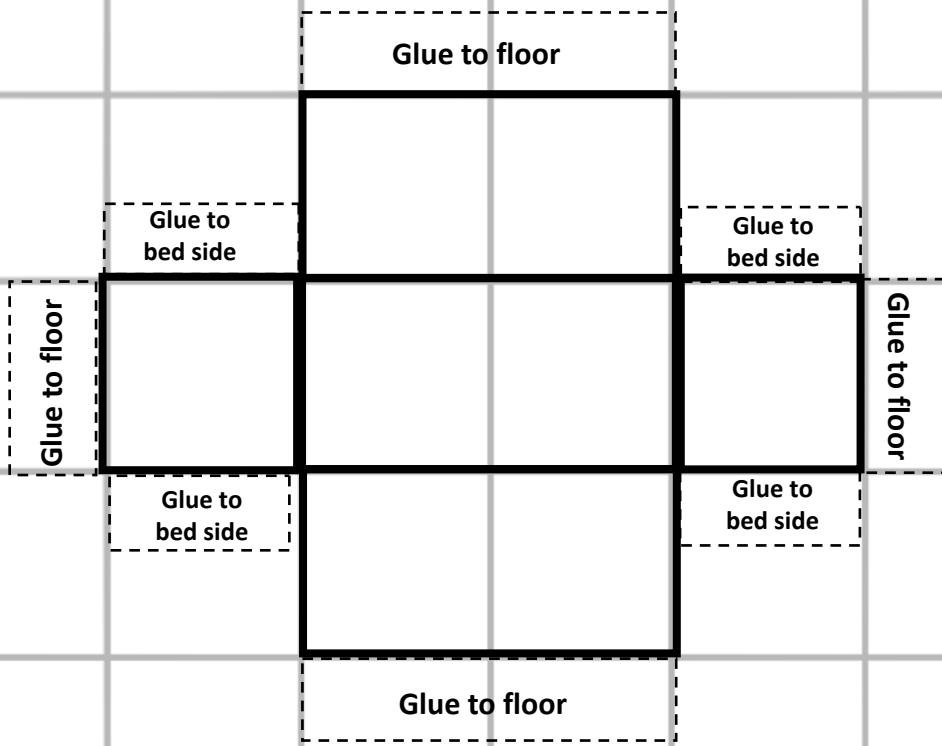
WALLS



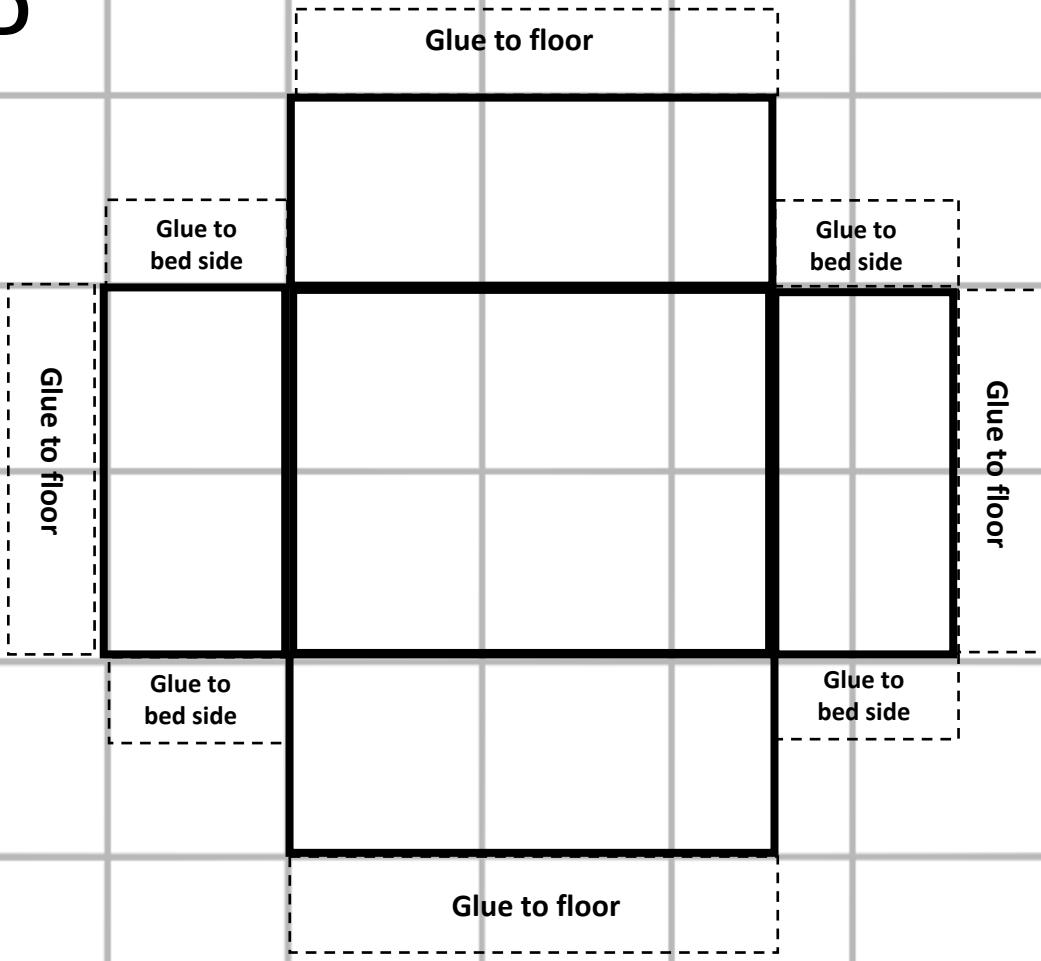
WALLS



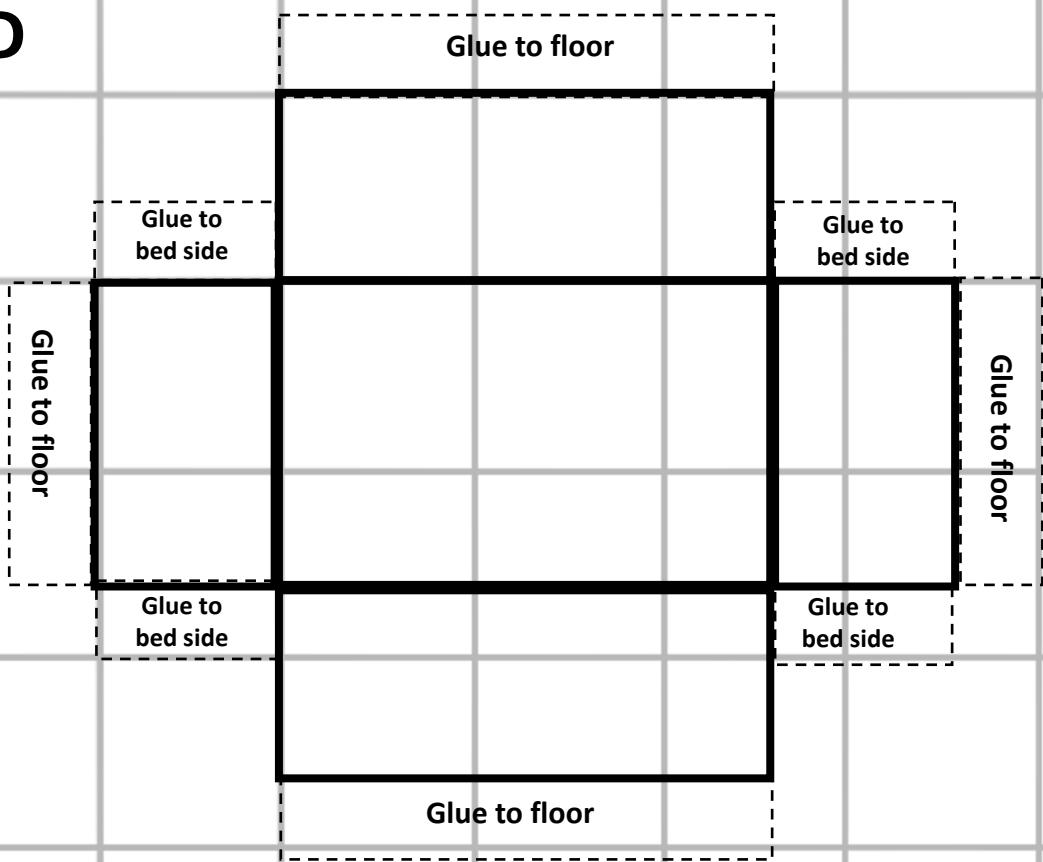
TWIN BED



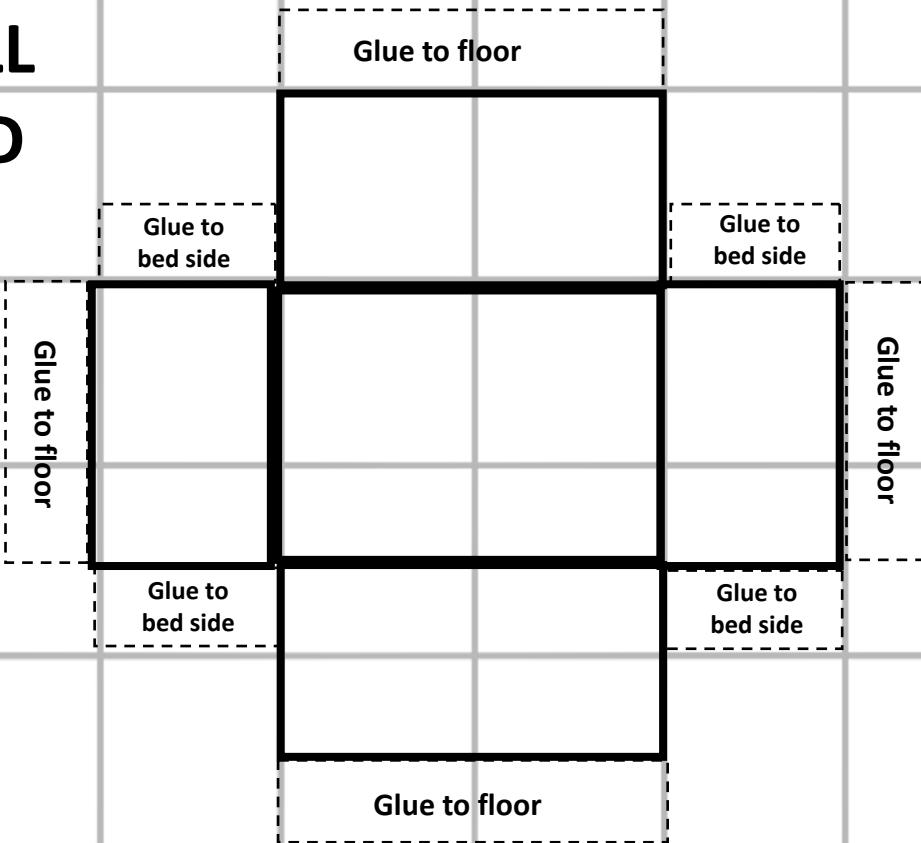
KING BED



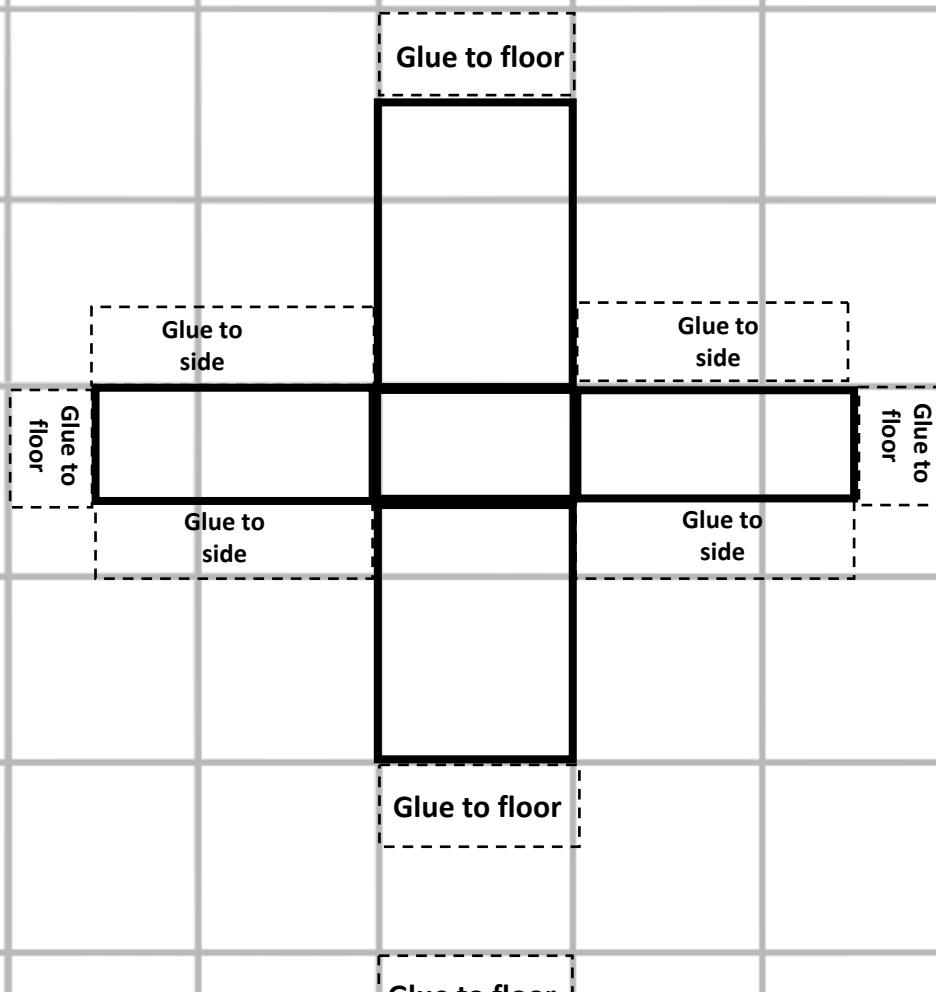
QUEEN BED



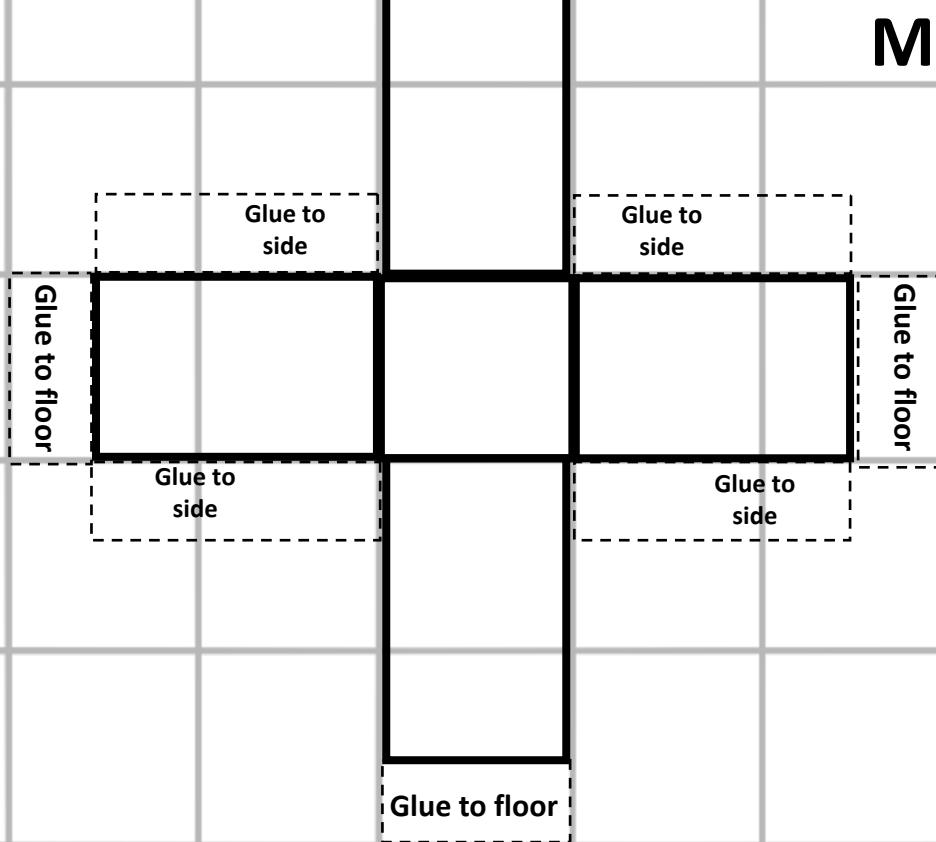
FULL BED



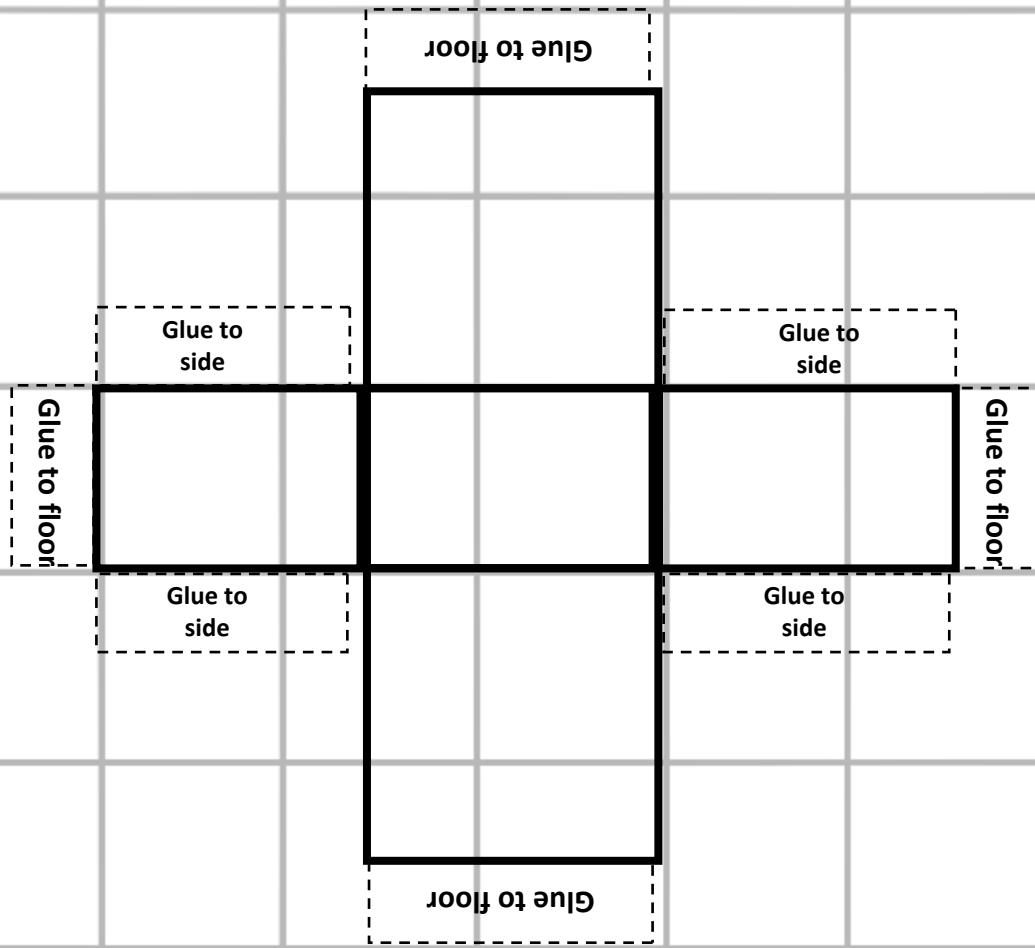
Small dresser



Medium dresser



Large dresser



Blank Grid Paper for Templates



Selected Answers

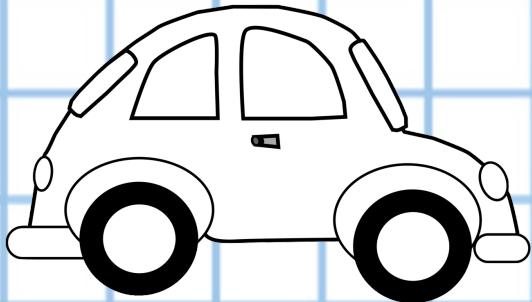
Metric

Scale Factor Answer Key

Scale factor is the ratio of the length/height of an item in a drawing to the length/height of that item in real life. For this project we will use the scale factor 1 square : 1 meter

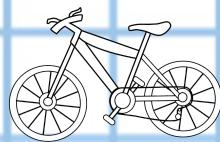
The car below is 5 squares long. In real life it would be 5 meters long.

Directions: Find the lengths and heights of the items shown below. Remember, 1 square = 1 meter.



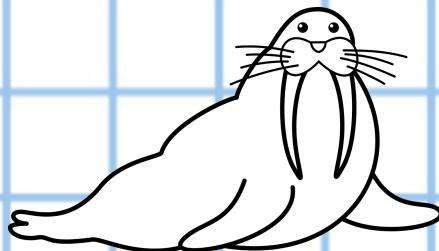
Car in drawing = 5 squares long

Car in real life = 5 meters long



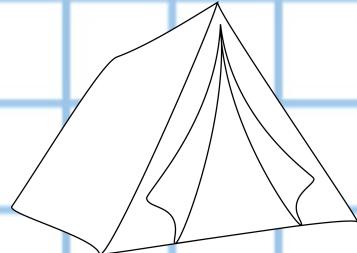
2

Bike =
_____ meters long



4

Walrus =
_____ meters long



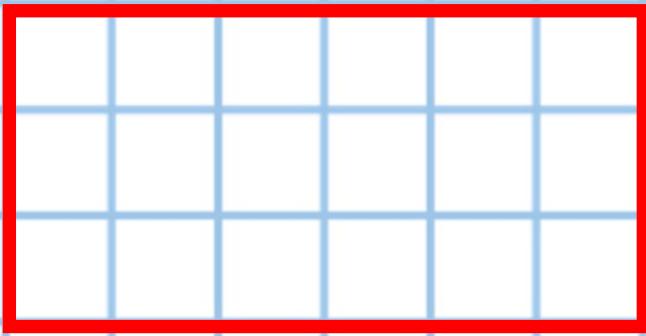
2

Tent =
_____ meters tall



1.5 Gnome =
_____ meters tall

Draw a rectangle that is
6 meters x 3 meters in real
life in the space below



Room Specifics

Area, Perimeter, Surface Area, Wall Coverings and Flooring

4 m x 5 m Bedroom

Area: 20 square meters

Perimeter: 18 meters

Walls:

Wall 1: $4 \text{ m} \times 3 \text{ m} = 12 \text{ sq meters}$

Wall 2: $5 \text{ m} \times 3 \text{ m} = 15 \text{ sq meters}$

Wall 3: $4 \text{ m} \times 3 \text{ m} = 12 \text{ sq meters}$

Wall 4: $5 \text{ m} \times 3 \text{ m} = 15 \text{ sq meters}$

Total wall surface area: 54 square meters

Liters of paint needed: 9

Rolls of wallpaper needed: 3

Paint cost: \$135

Wallpaper cost: \$135

Flooring:

Floor surface area: $4 \text{ m} \times 5 \text{ m} = 20 \text{ square meters}$

Wood flooring cost: \$500

Plain carpeting cost: \$280

Patterned carpeting cost: \$400

Room Specifics

Area, Perimeter, Surface Area, Wall Coverings and Flooring

5 m x 6 m Bedroom

Area: 30 square meters

Perimeter: 22 meters

Walls:

Wall 1: $5 \text{ m} \times 3 \text{ m} = 15 \text{ sq meters}$

Wall 2: $6 \text{ m} \times 3 \text{ m} = 18 \text{ sq meters}$

Wall 3: $5 \text{ m} \times 3 \text{ m} = 15 \text{ sq meters}$

Wall 4: $6 \text{ m} \times 3 \text{ m} = 18 \text{ sq meters}$

Total wall surface area: 66 square meters

Liters of paint needed: 11

Rolls of wallpaper needed: 4

Paint cost: \$165

Wallpaper cost: \$180

Flooring:

Floor surface area: $5 \text{ m} \times 6 \text{ m} = 30 \text{ square meters}$

Wood flooring cost: \$750

Plain carpeting cost: \$420

Patterned carpeting cost: \$600

Room Specifics

Area, Perimeter, Surface Area, Wall Coverings and Flooring

6 m x 7 m Bedroom

Area: 42 square meters

Perimeter: 26 meters

Walls:

Wall 1: $6 \text{ m} \times 3 \text{ m} = 18 \text{ sq meters}$

Wall 2: $7 \text{ m} \times 3 \text{ m} = 21 \text{ sq meters}$

Wall 3: $6 \text{ m} \times 3 \text{ m} = 18 \text{ sq meters}$

Wall 4: $7 \text{ m} \times 3 \text{ m} = 21 \text{ sq meters}$

Total wall surface area: 78 square meters

Liters of paint needed: 13

Rolls of wallpaper needed: 5

Paint cost: \$195

Wallpaper cost: \$225

Flooring:

Floor surface area: $6 \text{ m} \times 7 \text{ m} = 42 \text{ square meters}$

Wood flooring cost: \$1050

Plain carpeting cost: \$588

Patterned carpeting cost: \$840

Room Specifics

Area, Perimeter, Surface Area, Wall Coverings and Flooring

7 m x 9 m Bedroom

Area: 63 square meters

Perimeter: 32 meters

Walls:

Wall 1: $7 \text{ m} \times 3 \text{ m} = 21 \text{ sq meters}$

Wall 2: $9 \text{ m} \times 3 \text{ m} = 27 \text{ sq meters}$

Wall 3: $7 \text{ m} \times 3 \text{ m} = 21 \text{ sq meters}$

Wall 4: $9 \text{ m} \times 3 \text{ m} = 27 \text{ sq meters}$

Total wall surface area: 96 square meters

Liters of paint needed: 16

Rolls of wallpaper needed: 6

Paint cost: \$240

Wallpaper cost: \$270

Flooring:

Floor surface area: $7 \text{ m} \times 9 \text{ m} = 63 \text{ square meters}$

Wood flooring cost: \$1575

Plain carpeting cost: \$882

Patterned carpeting cost: \$1260

Furniture Calculations

For each item you are putting into your dream bedroom record the item, dimensions, area and perimeter on the chart below.

| Item | Dimensions (length x width) | Area of item | Perimeter of item |
|---------------------|--------------------------------|--------------|-------------------|
| Twin Bed | 2 m x 1 m | 2 sq m | 6 m |
| Full Bed | 2 m x 1.5 m | 3 sq m | 7 m |
| Queen Bed | 2.5 m x 1.5 m | 3.75 sq m | 8 m |
| King Bed | 2.5 m x 2 m | 5 sq m | 9 m |
| Small Dresser | 0.5 m x 1 m | 0.5 sq m | 3 m |
| Medium Dresser | 1 m x 1 m | 1 sq m | 4 m |
| Large Dresser | 1 m x 1.5 m | 1.5 sq m | 5 m |
| Small Nightstand | 0.5 m x 0.5 m | 0.25 sq m | 2 m |
| Medium Nightstand | 0.5 m x 1 m | 1 sq m | 3 m |
| Large Nightstand | 1 m x 1.5 m | 1.5 sq m | 5 m |
| Small Bookcase | 1 m x 1 m | 1 sq m | 4 m |
| Large Bookcase | 1 m x 2 m | 2 sq m | 6 m |
| Kids Desk | 0.5 m x 1 m | 0.5 sq m | 3 m |
| Small Computer Desk | 0.5 m x 1 m | 0.5 sq m | 3 m |
| Large Computer Desk | 1 m x 2 m | 2 sq m | 6 m |
| Chair | 1 m x 1 m | 1 sq m | 4 m |
| Loveseat | 1 m x 1.5 m | 1.5 sq m | 5 m |
| Couch | 1 m x 2 m | 2 sq m | 6 m |

Selected Answers

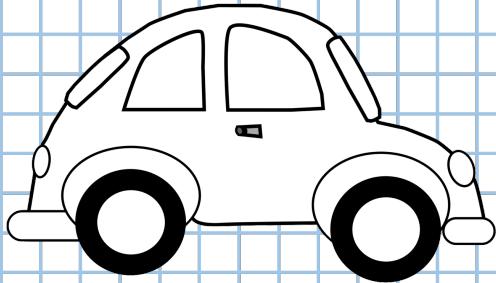
Customary

Scale Factor

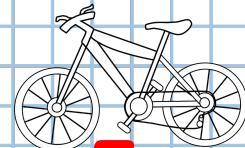
Scale factor is the ratio of the length of an item in a drawing to the length of that item in real life. For this project we will use the scale factor 1 foot : 1 square

The car below is 13 squares long. In real life it would be 13 feet long.

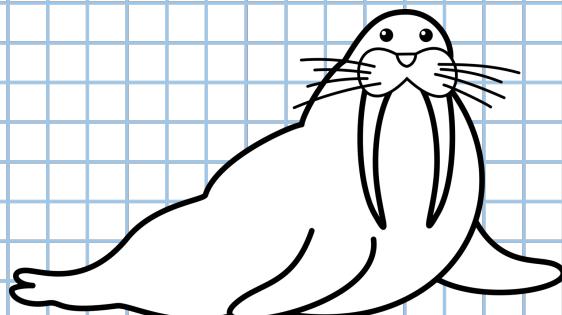
Directions: Find the lengths and heights of the items shown below.
Remember, 1 square = 1 foot.



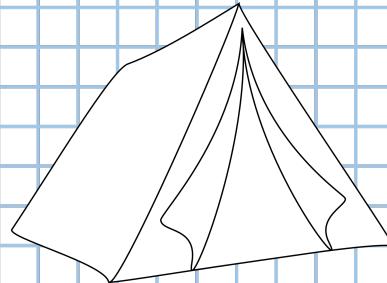
Car in drawing = 13 squares long
Car in real life = 13 feet long



Bike = 5 feet long



Walrus = 14 feet long

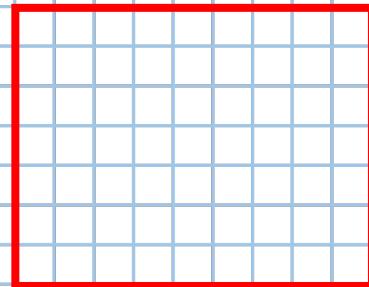


Tent = 7 feet tall



Gnome = 3 feet tall

Draw a rectangle that is 9' x 7' in real life in the space below



Room Specifics

Area, Perimeter, Surface Area, Wall Coverings and Flooring

10' x 10' Bedroom

Area: 100 square feet

Perimeter: 40 feet

Walls:

Wall 1: 10' x 8' = 80 square feet

Wall 2: 10' x 8" = 80 square feet

Wall 3: 10' x 8' = 80 square feet

Wall 4: 10' x 8" = 80 square feet

Total wall surface area: 320 square feet

Gallons of paint needed: 2

Rolls of wallpaper needed: 6

Paint cost: \$60

Wallpaper cost: \$180

Flooring:

Floor surface area: 10' x 10' = 100 square feet

Wood flooring cost: \$600

Plain carpeting cost: \$200

Patterned carpeting cost: \$400

Room Specifics

Area, Perimeter, Surface Area, Wall Coverings and Flooring

10' x 12' Bedroom

Area: 120 square feet

Perimeter: 44 feet

Walls:

Wall 1: 10' x 8' = 80 square feet

Wall 2: 12' x 8" = 96 square feet

Wall 3: 10' x 8' = 80 square feet

Wall 4: 12' x 8" = 96 square feet

Total wall surface area: 352 square feet

Gallons of paint needed: 2

Rolls of wallpaper needed: 7

Paint cost: \$60

Wallpaper cost: \$210

Flooring:

Floor surface area: 10' x 12' = 120 square feet

Wood flooring cost: \$720

Plain carpeting cost: \$240

Patterned carpeting cost: \$480

Room Specifics

Area, Perimeter, Surface Area, Wall Coverings and Flooring

12' x 14' Bedroom

Area: 168 square feet

Perimeter: 52 feet

Walls:

Wall 1: 12' x 8' = 96 square feet

Wall 2: 14' x 8" = 112 square feet

Wall 3: 12' x 8' = 96 square feet

Wall 4: 14' x 8" = 112 square feet

Total wall surface area: 416 square feet

Gallons of paint needed: 2

Rolls of wallpaper needed: 8

Paint cost: \$60

Wallpaper cost: \$240

Flooring:

Floor surface area: 12' x 14' = 168 square feet

Wood flooring cost: \$1,008

Plain carpeting cost: \$336

Patterned carpeting cost: \$672

Room Specifics

Area, Perimeter, Surface Area, Wall Coverings and Flooring

13' x 17' Bedroom

Area: 221 square feet

Perimeter: 60 feet

Walls:

Wall 1: 13' x 8' = 104 square feet

Wall 2: 17' x 8" = 136 square feet

Wall 3: 13' x 8' = 104 square feet

Wall 4: 17' x 8" = 136 square feet

Total wall surface area: 480 square feet

Gallons of paint needed: 2

Rolls of wallpaper needed: 9

Paint cost: \$60

Wallpaper cost: \$270

Flooring:

Floor surface area: 13' x 17" = 221 square feet

Wood flooring cost: \$1,326

Plain carpeting cost: \$442

Patterned carpeting cost: \$884

Furniture Calculations

For each item you are putting into your dream bedroom record the item, dimensions, area and perimeter on the chart below.

| Item | Dimensions (length x width) | Area of item | Perimeter of item |
|---------------------|--------------------------------|--------------|-------------------|
| Twin Bed | 6' x 3' | 18 sq feet | 18 feet |
| Full Bed | 6' x 4.5' | 27 sq feet | 21 feet |
| Queen Bed | 6.5' x 5' | 32.5 sq feet | 23 feet |
| King Bed | 7' x 6' | 42 sq feet | 26 feet |
| Small Dresser | 1.5' x 3' | 4.5 sq feet | 9 feet |
| Medium Dresser | 2' x 3.5' | 7 sq feet | 11 feet |
| Large Dresser | 2' x 4' | 8 sq feet | 12 feet |
| Small Nightstand | 1.5' x 1.5' | 2.25 sq feet | 6 feet |
| Medium Nightstand | 1.5' x 2' | 3 sq feet | 7 feet |
| Large Nightstand | 2' x 2.5' | 5 sq feet | 9 feet |
| Small Bookcase | 0.5' x 3' | 1.5 sq feet | 7 feet |
| Large Bookcase | 1' x 5' | 5 sq feet | 12 feet |
| Kids Desk | 2' x 2.5' | 5 sq feet | 9 feet |
| Small Computer Desk | 2.5' x 3' | 7.5 sq feet | 11 feet |
| Large Computer Desk | 2.5' x 5' | 12.5 sq feet | 15 feet |
| Chair | 3' x 3' | 9 sq feet | 12 feet |
| Loveseat | 3' x 5' | 15 sq feet | 16 feet |
| Couch | 3' x 7' | 21 sq feet | 20 feet |

DREAM BEDROOM RUBRIC

| | 4 Exceeds Expectations | 3 Meets Expectations | 2 Approaching Expectations | 1 Does Not Meet Expectations |
|----------------------------------|--|--|--|---|
| Research & Information Gathering | <p>My research included a variety of sources.</p> <p>I took several pages of notes.</p> <p>My research and notes are organized and easy to use.</p> | <p>My research included one or two sources.</p> <p>I took a page or two of notes.</p> <p>Most of my research and note taking is organized and easy to use.</p> | <p>My research included only one source.</p> <p>All of my notes are on one page.</p> <p>Some of my notes are hard to follow or understand.</p> | <p>I did not do any additional research.</p> <p>I did not take any notes or I took some notes but they are unorganized and not helpful to me.</p> |
| Planning & Critical Thinking | <p>I made purposeful and logical decisions in planning my project.</p> <p>I was able to find more than one area of my project that I could revise and improve.</p> | <p>I made good decisions in planning my project.</p> <p>I made some small revisions to my project.</p> | <p>It was hard for me to make decisions in planning my project and some of my decisions did not make sense..</p> <p>I did not see any areas of my project that could be revised.</p> | <p>I did not make any real decisions in the planning of this project.</p> <p>I did not look for ways to revise my project.</p> |
| Mathematical Accuracy | <p>My project contained no math errors.</p> | <p>My project contained no major math errors.</p> | <p>My project contains some major math errors.</p> | <p>My project contains several major math errors.</p> |
| Final Product | <p>My final product showed attention to detail in all areas, used original ideas, was neatly organized, and showed sustained effort.</p> | <p>My project showed overall neatness, organization, and effort.</p> | <p>My final project was lacking attention to detail, could have been neater and appears to have been done quickly.</p> | <p>My final project does not show the neatness, details and effort I am capable of.</p> |

PHOTOS



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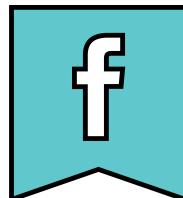
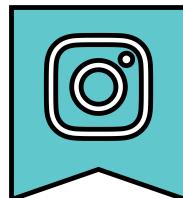
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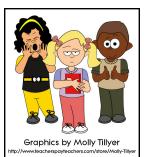
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Million Dollar Math Project

What types of things did you spend your million dollars on? Calculate what percent of your purchases were spent in each category.

| Category | Total Amount Spent | Percent of Total Money Spent |
|----------------|--------------------|------------------------------|
| Housing | \$250,000 | 25% |
| Transportation | \$24,595 | 2.5% |
| Education | \$109,876 | 11% |
| Donation | \$10,000 | 1% |
| Electronics | \$10,000 | 1% |
| Entertainment | \$10,000 | 1% |

Spending Graph

How I Spent My Million Dollars

My House *My Car*

Charity ABC *Help Now* *Share & Give*

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Geometry City

Lines & Angles Project

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Magic Square Puzzles

Magic Square
Place the number tiles on the grid below so that each row, column and diagonal add up to 72.

Magic Square
Place the number tiles on the grid below so that each row, column and diagonal add up to 86.

Magic Square
Place the number tiles on the grid below so that each row, column and diagonal add up to 58.

Magic Square
Place the number tiles on the grid below so that each row, column and diagonal add up to 94.

SOLUTION: Sum = 62

SOLUTION: Sum = 50

SOLUTION: Sum = 58

SOLUTION: Sum = 94

SOLUTION: Sum = 86

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S.T.E.M. Design Challenge

Solar Ovens

Build an Oven to Cook a S'more!

PIZZA!

PIZZA!

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