

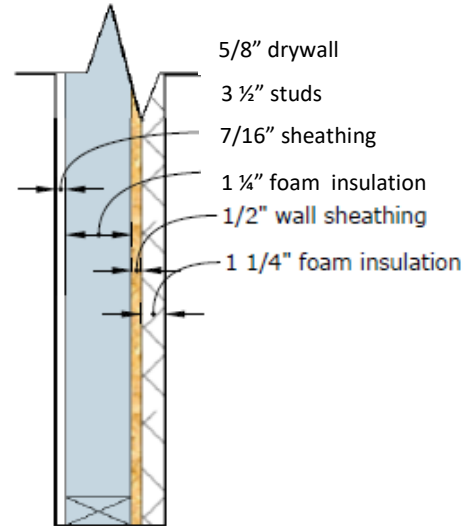
Complete this sheet (front and back) without a calculator. When done, raise your hand and your instructor will trade you this sheet for the rest of the exam.

Directions: To receive FULL CREDIT, you must:

Each piece of each problem (except the bonus problems) is worth 10 points

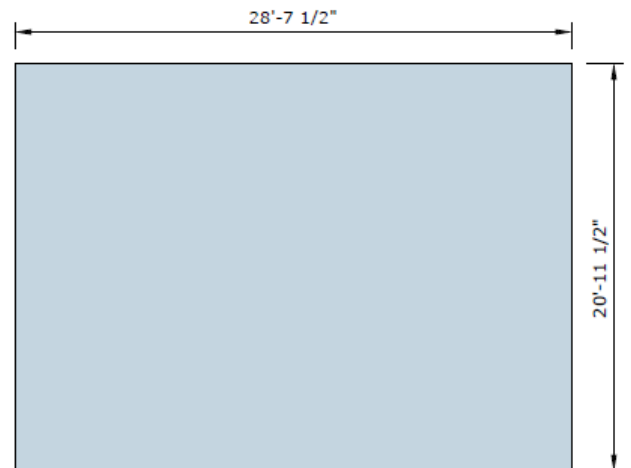
- Show calculations supporting your answer.
- Include units in all answers and circle your answer when done.
- For the “explain” questions, answers are expected to be a complete thought that is clear, correct, and can be followed when read by your instructor.

1. What is the total thickness of the wall shown in the detail?



2. Answer the following questions for the concrete slab shown below.

- a. Estimate the area of the concrete slab.
Explain what you did to come up with your estimate.

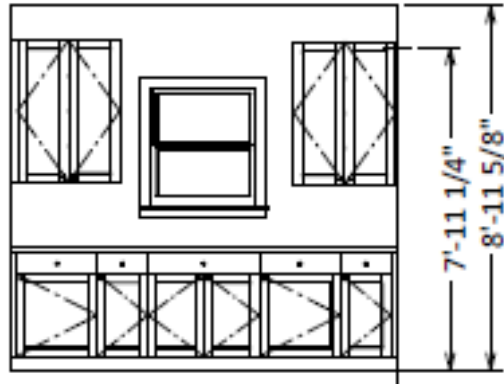


- b. Estimate the linear feet of 2x4 lumber you will need to create form for this slab. Explain what you did to come up with your estimate.

Vocational Math for Construction

Midterm Exam

3. For the kitchen elevation shown below, find the distance between the top of the upper cabinets and the ceiling.



4. BONUS (5 points): How many pieces of $\frac{1}{4}$ " plywood are in a stack 15" high?

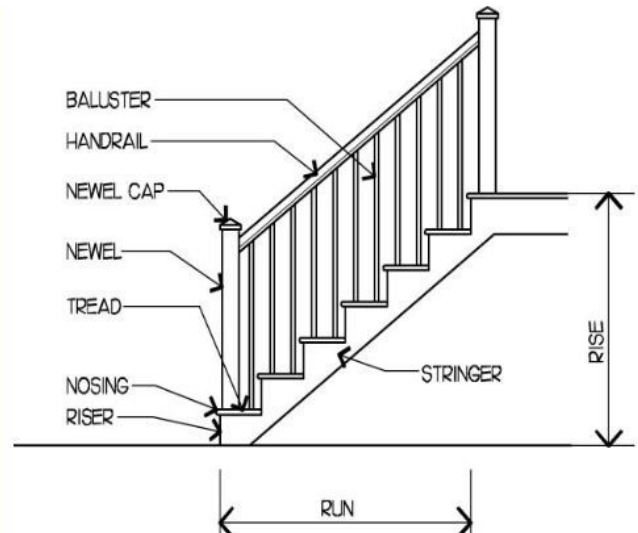
Directions: To receive FULL CREDIT, you must:

- Show calculations supporting your answer (show the math you did with your calculator).
- Be sure to show your work in a way that the instructor can follow/see what you did
- Include units in all answers.
- Circle your answer when done.

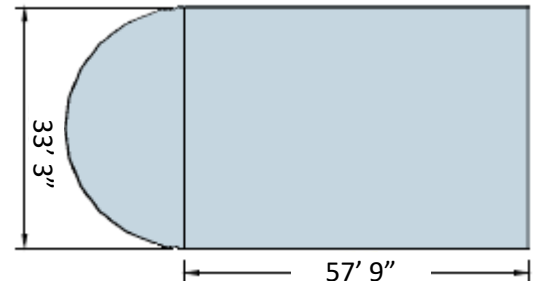
Each piece of each problem (except the bonus problems) is worth 10 points

CALCULATOR OKAY on ALL remaining problems:

5. You need three strips of lumber, each $2\frac{3}{16}$ " wide. Allowing for a $\frac{1}{8}$ " kerf when ripping the lumber, how wide a board would you need to start with?
6. The flight of stairs shown below has 7 risers. Each step (riser + nosing) is $7\frac{5}{8}$ ". What is the total rise?



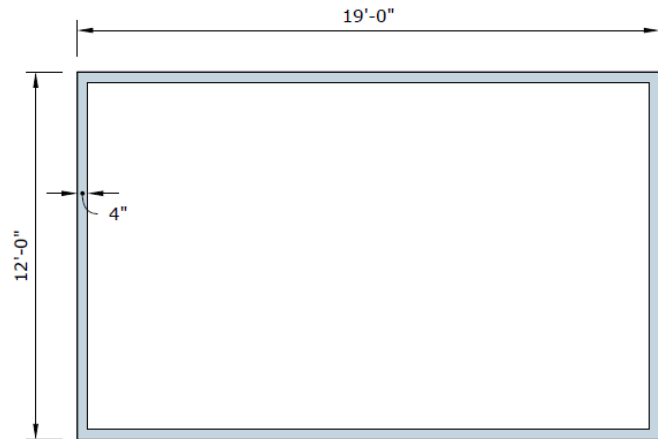
7. A former basketball star wants to build a home with the shape and size shown. What will the perimeter of her home be?



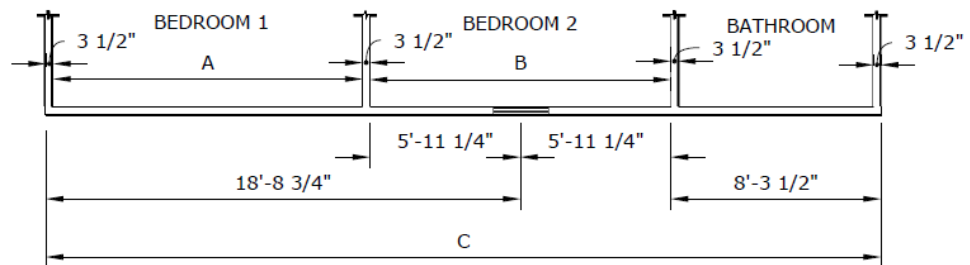
Vocational Math for Construction

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8. The picture below represents a large room with a decorative border that is 4 inches wide (grey shaded area) around the edges of the room. What is the total decorative border area?



9. Answer the questions about the partial house plan shown below.



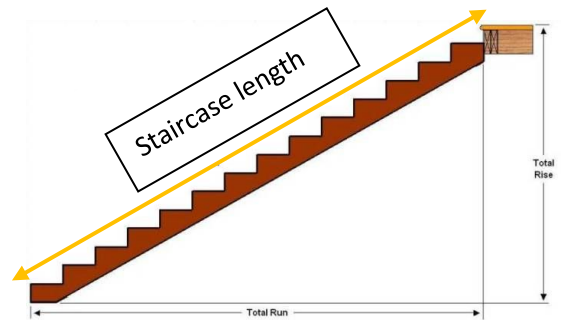
- a. What is the inside width of the Bathroom?
- b. What is the overall width of the house, dimension C?

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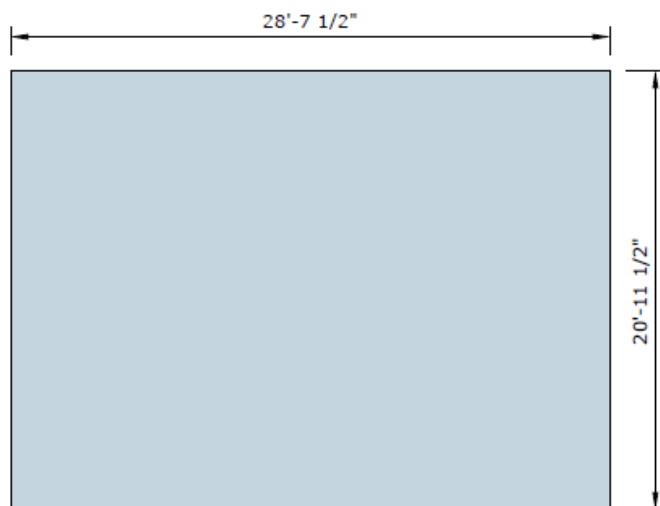
Midterm Exam

10. You are installing strip flooring in a room that is $14' - 5 \frac{1}{4}"$ wide. If the flooring is $3 \frac{1}{2}"$ wide, how many strips will be needed to go across the room?

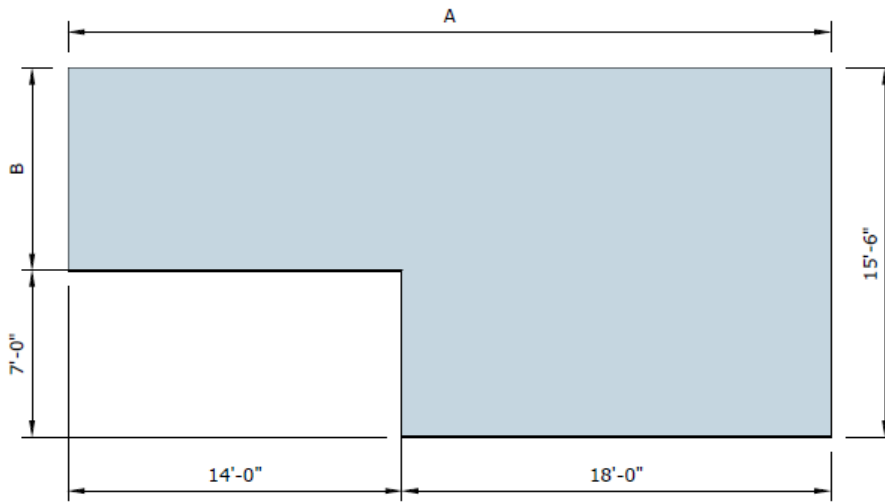
11. What is the length of the staircase for the stairs shown if the total run is 12' and the total rise is 9'? (Note: For full credit, you may not use the 'Rise' and 'Run' buttons on your calculator to answer this question).



12. What should the diagonal measurement from corner to corner be, to prove that the concrete slab shown in the image below is square? (Note: For full credit, you may not use the 'Rise' and 'Run' buttons on your calculator to answer this question).

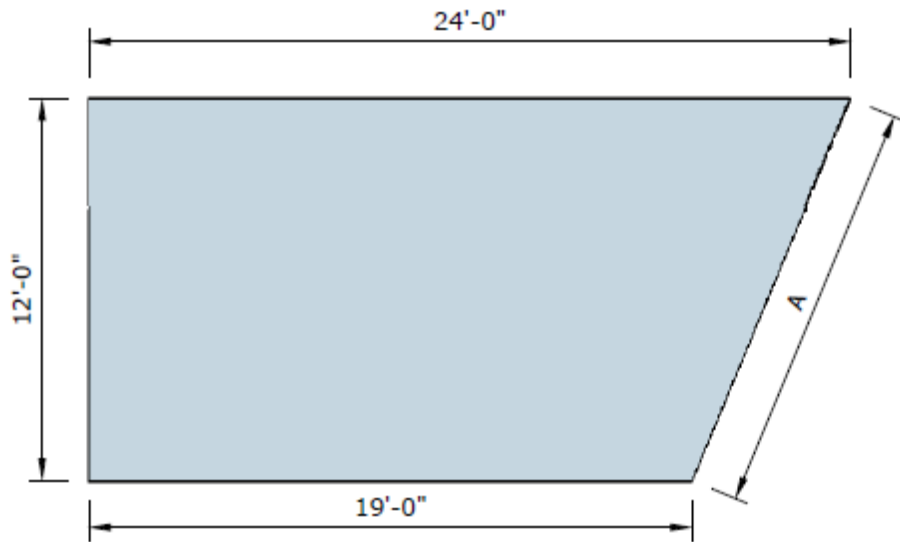


13. Answer the following questions about the house plan shown below.



- What is dimension A?
- What is dimension B?
- What is the area of this house?
- How many 4' x 8' sheets of plywood would you need to sheathe the floor?
- You charge \$2.75 per square foot of sheathing you install. How much will you charge for installation?
- To be safe, you also like to add 10% to the labor price you've calculated. Given that how much will the sheathing installation cost the customer?

14. Answer the following questions about the house plan shown below.



- a. What is the area of the house?

- b. BONUS (5 points): What is dimension A?