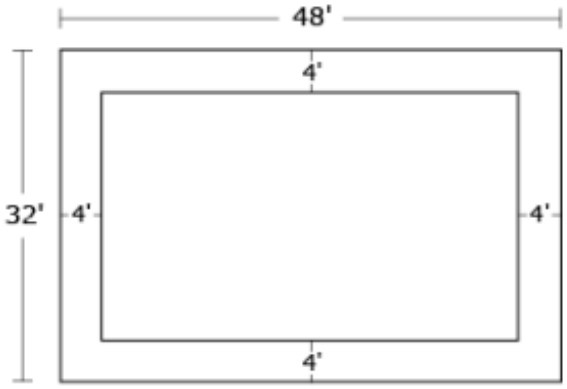
Level 2: Geometry Midtest

Question 1:

The manager of a small hotel wants a new rug for the lobby. The dimensions of the lobby are 48 feet by 32 feet. The manager wants 4 feet of space between the rug and the wall on every side.

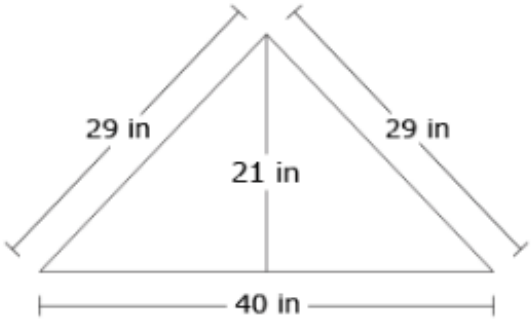


How many square feet will the new rug cover?

square feet

Question 2:

As part of an extension on a house, a carpenter is building a gabled window. The top section is a triangular piece shown below.



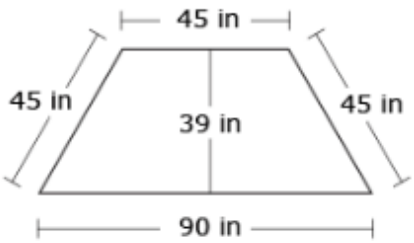
What is the area of this piece?

square inches

Continue ➡

Question 3:

An architect is designing an alcove for a bay window on the front of a house as shown in the diagram below.



What will be the area of this section of floor (to the nearest square inch)?

square inches

Question 4:

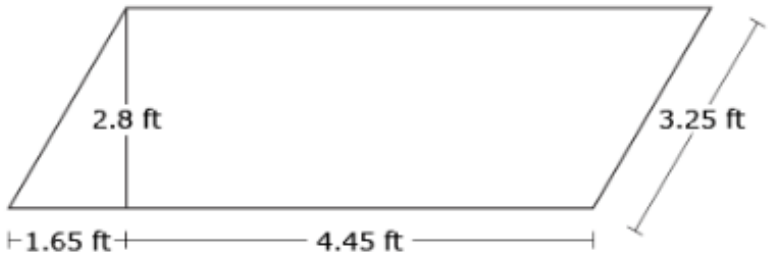
A contractor is laying out a parking lot for a new store location. In most locations, the parking lot is a rectangle, 180 feet long and 125 feet wide. At this store, the parking lot will be square, with the same area as the rectangular lots.

How long and wide will the new parking lot be?

feet

Question 5:

An interior decorator is painting a logo on the wall of a bank. The shape and dimensions of the logo are shown in the diagram.



What is the area that needs to be painted (to the nearest tenth of a square foot)?

square feet

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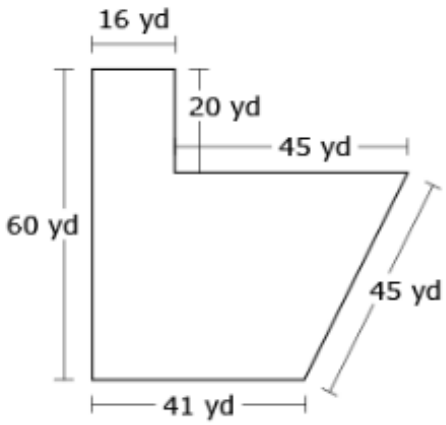
Question 6:

A tax assessor needs to determine the value of the piece of land shown in the diagram below.

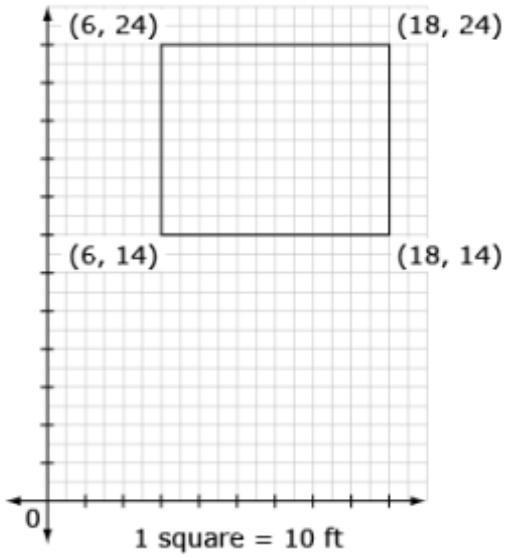


If land is valued at $12 per square yard, what would be the assessed value of this property?

$ _____

Question 7:

A real estate broker is writing an advertisement, and wants to describe the plot of land on which a house is located. The coordinates of the corners are given relative to a nearby benchmark.



a. square
b. rectangle

Fill in the description written by the broker: The house sits on a _____ lot that measures _____ by _____ feet.

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Question 8:

An excavator is digging holes for the foundational pylons of a new building. The site has been marked with a set of grid lines to lay out the foundations. The pylons will form a rectangle, and the first three holes were dug at (124, 56), (124, 128) and (168, 128).

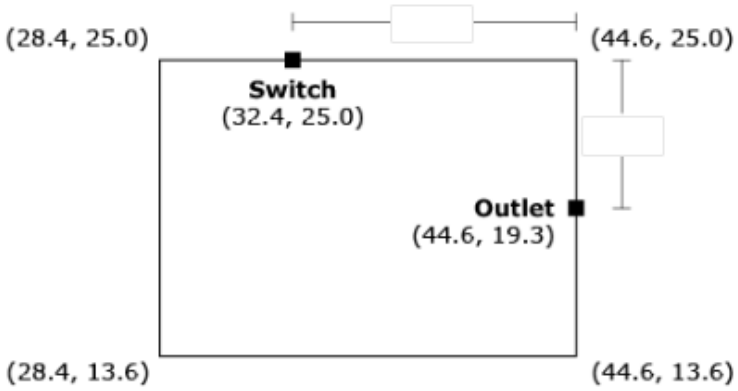
At what coordinates should the final hole be dug?

(,)

Question 9:

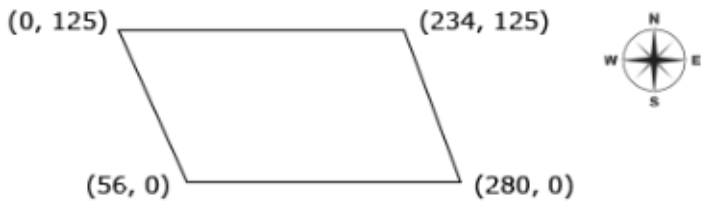
An electrician must install a wire from a wall switch on one wall of a room to an outlet on another wall.

The room is drawn on a coordinate grid. The diagram shows the coordinates of the corners, the switch, and the outlet. Label the two lengths along the walls that make up the distance that this wire must travel.



Question 10:

The four corners of a plot of land are marked with coordinates, in feet, as shown below. A real estate agent wants to know if the frontage (length of the boundary) is the same on the north and south side of the property.



Find the lengths of the north and south sides of the property.

North: feet

South: feet

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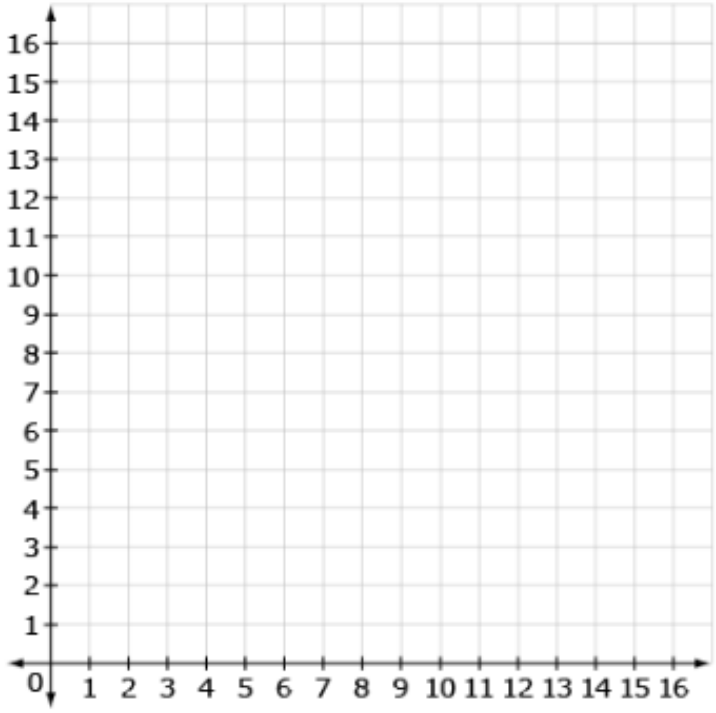
Question 11:

A graphic artist is creating a logo which will start with a parallelogram shape. She uses a layout grid to make sure the shape is correct. Three of the vertices of the parallelogram are (2, 3), (6, 11), and (10, 3).



What will be the coordinates of the fourth vertex?)

(,)

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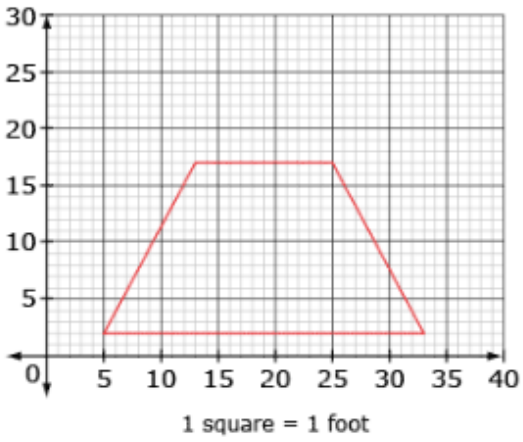
Question 12:

An engineer is studying the plans for a new bridge. One structural piece in the shape of a trapezoid is shown on the grid below.



Find the length of the top and bottom of this piece.

Top: _____ feet

Bottom: _____ feet

Question 13:

An architect is designing a building that will have two identical entrances in the front and back. She wants to make sure the plans were drawn correctly. On the plans, the front entrance is drawn from the coordinates (80, 24) to (80, 56). The back entrance is drawn from (210, 48) to (210, 80).

Find the width of each entrance and the difference between the two widths.

Front Entrance: _____ feet wide

Back Entrance: _____ feet wide

Difference in width: _____ feet

Continue ➡

Question 14:

A software engineer is using graph paper to draw a flowchart of a program. The length of the side of each square on the graph paper is 1 centimeter. A parallelogram will represent an input to the program. He marks the vertices on the left side of the parallelogram at (34, 12) and (36, 15).

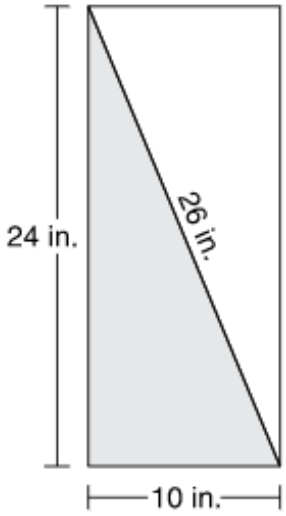
If he wants the top and bottom of the parallelogram to be 8 centimeters long, what will be the coordinates of the other two vertices?

(,)

(,)

Question 15:

Tyler is making a rectangular banner for his school's spirit day. He starts by painting one-half of the banner gray as shown below.



What is the area of the part of the banner Tyler painted gray?

square inches

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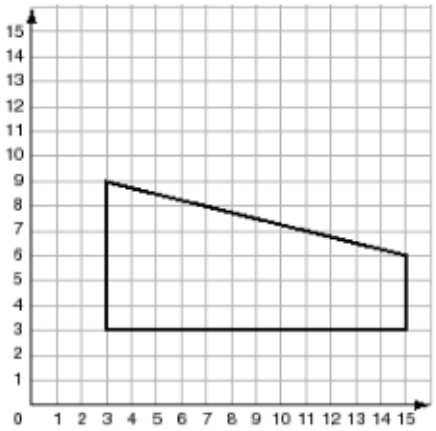
Question 16:

Alicia drew the figure below on a coordinate plane.

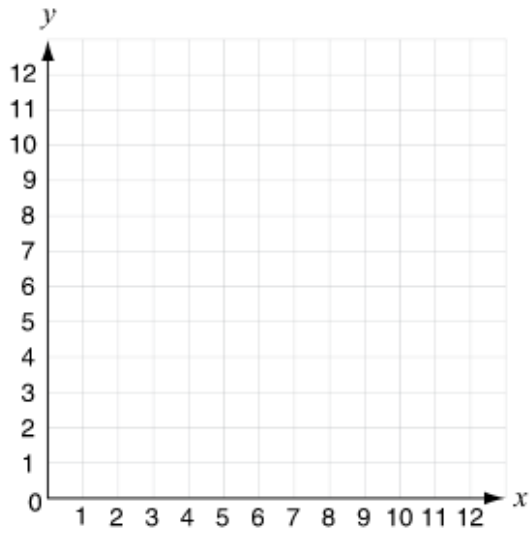


What is the area of the figure?

square units

Question 17:

You may use the coordinate plane below to help you answer this question.



Gabrielle drew a rectangle with vertices located at (3, 4), (3, 7), (12, 4), and (12, 7).

What is the length of each of the longer sides of the rectangle?

units

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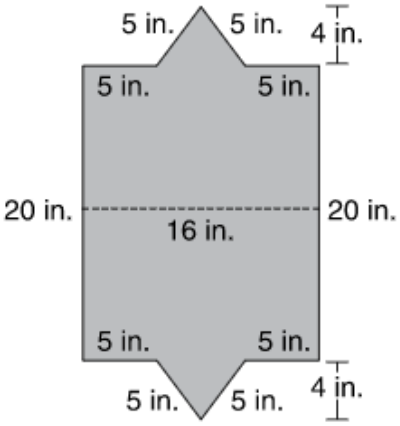
Question 18:

Nathan unfolded a cardboard box and saw the shape below.

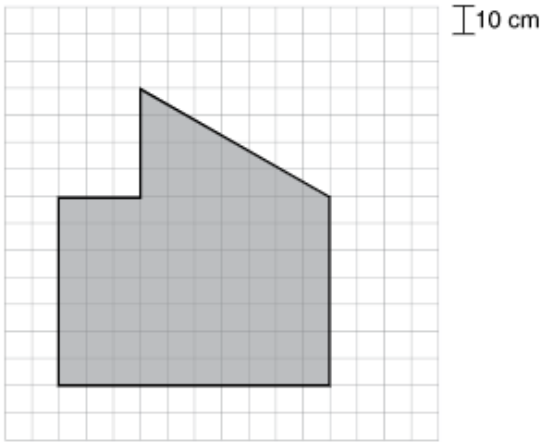


What is the area of the unfolded box in square inches?

sq in

Question 19:

A scale model of a piece of metal is shown below.



What is the area, in square centimeters, of the actual piece of metal? (Be sure to use the scale to find your answer.)

sq cm

Stop