Level 2: Geometry Posttest

Question 1:

A brick mason is estimating the number of bricks needed for the walls of a new building. The bricks are 8 inches long, $3\frac{1}{2}$ inches tall, and 3 inches wide.

If the width of a brick represents the thickness of the wall, what is the area of wall that each brick will cover?

a. $10\frac{1}{2}$ square inches

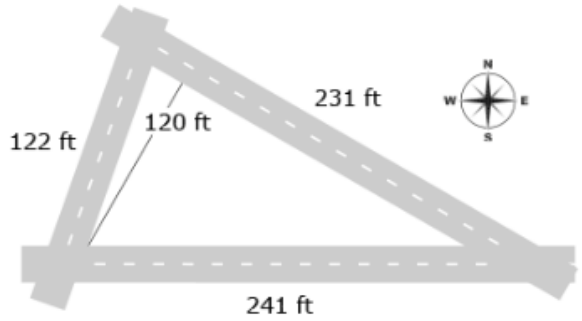
b. 24 square inches

c. 28 square inches

d. 84 square inches

Question 2:

An urban planner is proposing to convert an unused space into a park. The space is bordered by three roads, as shown on the map below.

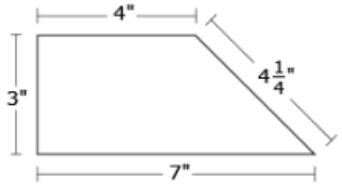


What is the area of the proposed park?

square feet

Question 3:

A chef is making a pastry that starts with a piece of dough cut in the shape shown below.



If she needs to make 30 of these pastries, how much dough will she need to roll out?

square inches

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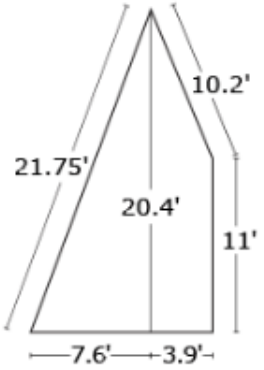
Question 4:

A boat builder needs to account for the weight of the sails. One sail will be a gaff sail, shown below.



To determine the weight he first needs to find the area of the sail.

What is the area of the sail shown?

square feet

Question 5:

An interior designer working on a shopping mall decides to place a large shrub near the entrance. The shrub will sit in a planter that is in the shape of a cube 2.5 feet on each side.

How much soil will be needed to fill the planter (to the nearest tenth)?

cubic feet

Question 6:

A chemical engineer is studying a combustion chamber for a new engine design. The base area of the chamber is 28 square centimeters. A moving piston changes the height from a maximum of 8.2 centimeters to a minimum of 3.4 centimeters.

What is the maximum and minimum volume of the chamber?

Maximum: cubic centimeters

Minimum: cubic centimeters

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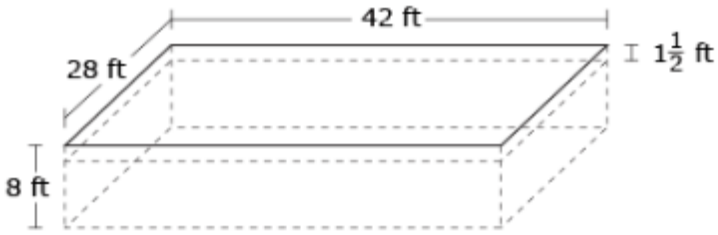
Question 7:

An excavator has to dig a hole so a foundation can be poured. The foundation will be 28 feet wide, 42 feet long, and 8 feet deep. However, the foundation will rise 1.5 feet above the ground level.

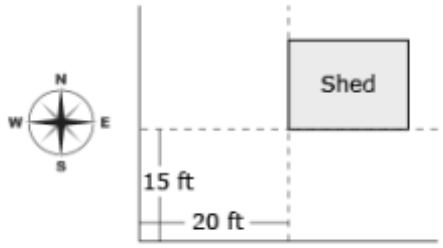


How much dirt must the excavator remove?

[ ] cubic feet

Question 8:

A contractor is marking the corners of a 12-foot by 16-foot shed to be built. Based on zoning laws, the shed must be 20 feet away from the west side of the property and 15 feet from the south side. Using the distance from the west and south sides as coordinates, the first two corners are marked at (20, 15) and (20, 27).



What are the coordinates of the other two corners?

([ ] , [ ])

([ ] , [ ])

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Question 9:

A video producer is planning the lighting arrangements for recording a live concert. One set of lights will be in a rectangular array above the audience. She uses the seat numbers to show where the lights should be hung.

Light 1: row 5, seat 8

Light 2: row 5, seat 29

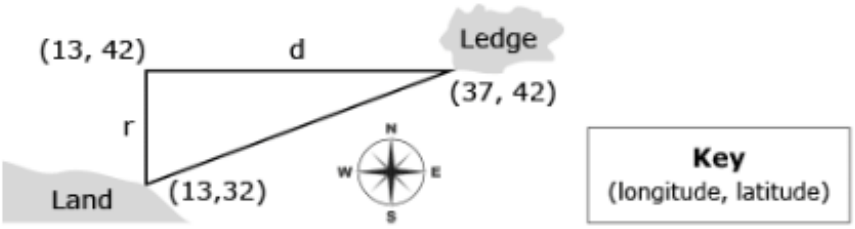
Light 3: row 17, seat 8.

Above which seat should the fourth light be hung to complete the rectangle?

row _____, seat _____

Question 10:

An oceanographer wants to estimate the distance between a point of land and an exposed ledge offshore using the latitude and longitude of the two points. Because they have the same degrees and minutes for latitude and for longitude, she only needs to use the seconds that are given on the diagram below.



One second of latitude is equivalent to 30.9 meters, and one second of longitude is equivalent to 22.5 meters (at this latitude). Calculate the length of the two sides of the triangle.

r = _____ meters

d = _____ meters

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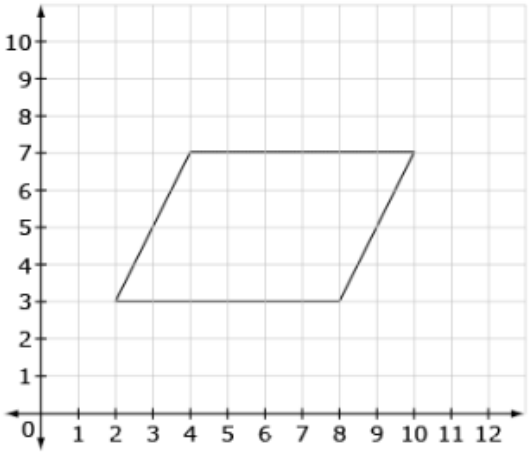
Question 11:

A graphic artist is doing a layout for an advertisement. The company logo includes a parallelogram. To make sure the shape is correct, he needs to check the lengths of the top and bottom lines, using the layout grid.



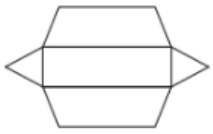
Fill in the conclusion by the artist:

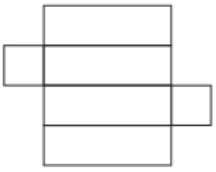
The shape ▾ a parallelogram, because the length of the top line is ▾ and the length of the bottom line is ▾.

Question 12:

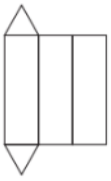
Seth is working for a shipping company. A customer comes in with an object that needs to be packed in a triangular box (triangular prism). There is a stock of different types of unfolded boxes.

Which of the following nets represents the box that Seth needs?

a. 

b. 

c. 

d. 

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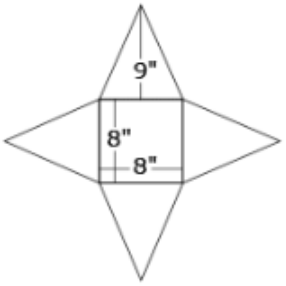
Question 13:

Theresa has been asked to design an unusual package for a new product. The shape will be a pyramid as shown by the net below.

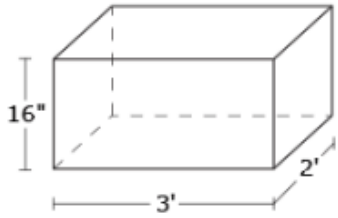


What is the total area of the packaging?

square inches

Question 14:

A manufacturing company ships its product in boxes like the one shown below. The dimensions of the box are 3 feet x 2 feet x 16 inches.



What is the total area of cardboard, in square feet, used for this box?

ft^2

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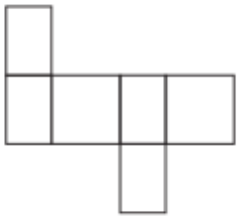
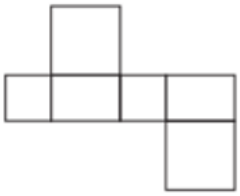
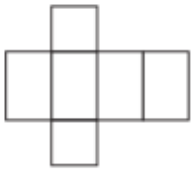
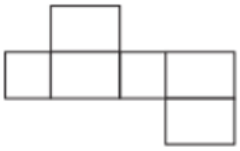
Question 15:

Terry is sorting boxes for shipping. Which two nets represent the same box when folded together?

a. 

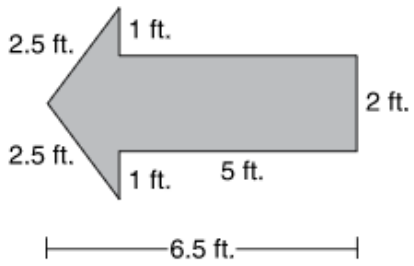
c. 

b. 

d. 

Question 16:

The figure below shows the dimensions of an arrow painted on the pavement of a parking lot.



The entire length of the arrow is 6.5 feet.

What is the area, in square feet, of the arrow?

a. 11.25 ft^2

b. 13 ft^2

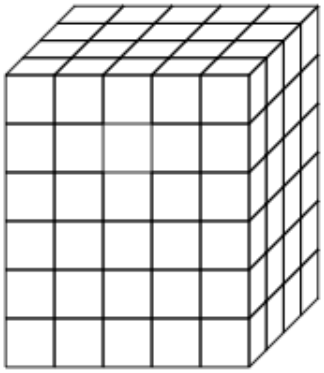
c. 13.75 ft^2

d. 14 ft^2

Continue ➡

Question 17:

The picture below shows sugar cubes that will be packed into a box for shipping.



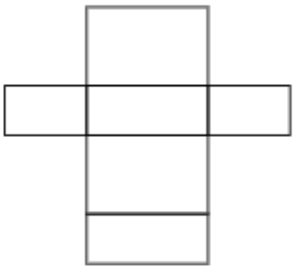
Each sugar cube has an edge length of $\frac{1}{2}$ inch.

What is the total volume of the sugar cubes?

_____ cubic inches

Question 18:

The net of a three-dimensional figure is shown below.



Which type of figure is this?

a. cone

b. cube

c. rectangular pyramid

d. rectangular prism

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Question 19:

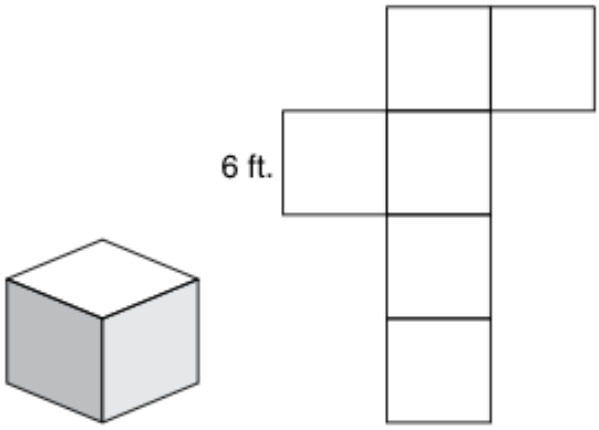
Brenda is buying an aquarium in the shape of a rectangular prism. It has a base area of $4\frac{1}{2}$ square feet and a height of 4 feet.

What is the volume, in cubic feet, of the aquarium?

ft^3

Question 20:

The diagram below shows a cube and its net.



What is the surface area, in square feet, of the cube?

ft^2

Stop