

Name _____

1. a. Malukah measures Tamera's height with a non-standard unit of measurement, blocks from their building center. She finds that Tamera is 15 blocks tall. Another student uses pipe cleaners to measure Tamera's height. She notices that 2 pipe cleaners are the same length as 5 blocks. How many pipe cleaners long is Tamera? Show work so your thinking is clear.

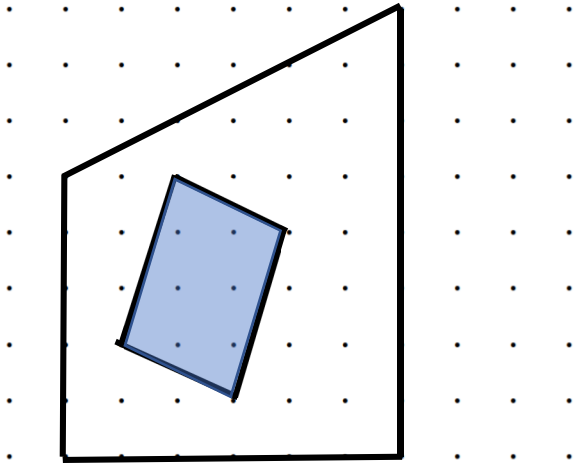


- b. Another student, Madison, joins in the measurement game. Madison gets upset with her peers and says that Tamera is only 13 blocks long when she measures her. Provide a possible explanation for the difference in Malukah and Madison's measurements. Include a drawing in your response.

2. Convert 125 square feet to square meters. Show all work. Use the fact 1 inch = 2.54 cm in your calculations.

3. Below is the outline of Khalil's new yard. The scale is 1 square = 1 square yard.

(a) He is going to make the yard into a stone patio, with space for a pool (shaded portion). What is the area of the patio? Find the exact area using basic area concepts (# square units) and strategies such as subdivide or surround-and-subtract. Show all work. Annotate the diagram so your thinking process is clear.



(b) Khalil wants to build a fence around the outside of the patio. How many yards of fencing should he buy? Round your final answer to the nearest tenth.

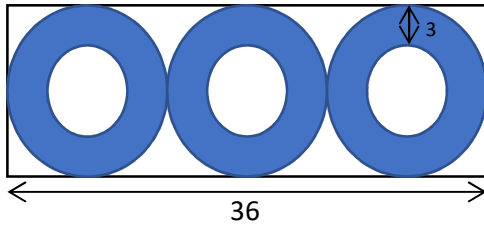
4. A prism has an octagon base.

How many faces does it have?

How many edges does it have?

How many vertices does it have?

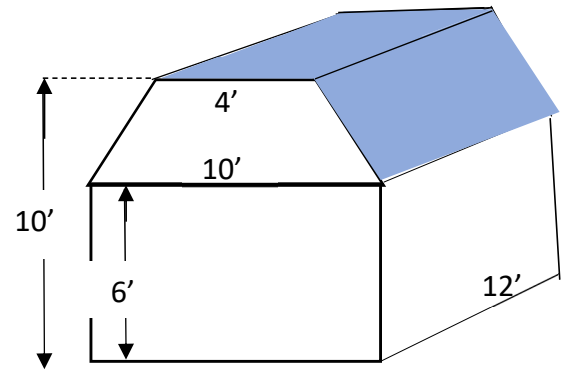
5. Grandma Bess is making a quilt for her grandchild with the pattern shown below (dimensions are in inches). The shaded portions are identical circles with the centers cut out.



Grandma Bess plans to repeat the pattern so that it is 72 inches by 72 inches.

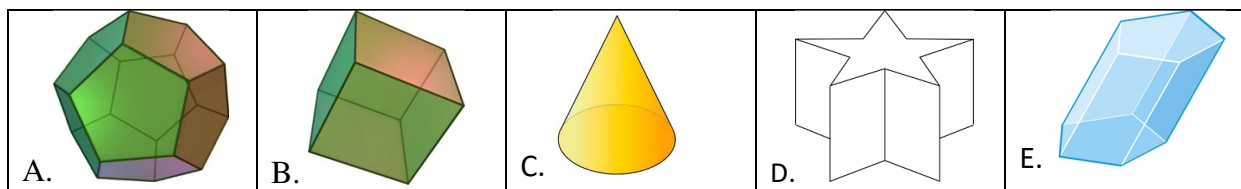
- a. How many square inches of the finished, entire, quilt will be made from the **shaded** fabric? Show work. Round your final answer to the nearest whole number.
- b. The shaded fabric costs \$5.20 per square **yard**. What will the shaded fabric cost Grandma Bess to make the quilt? (Just use your calculation from part b. Do not include extra fabric for margins or waste.) Round your final answer to two decimal places.

6. Consider the shed pictured at right. The top is a trapezoidal prism (the trapezoid is isosceles), and the main part of the structure is a rectangular prism. The horizontal and slanted portions of the trapezoidal prism will be covered with shingles; all of the vertical surfaces will be covered with aluminum siding.



- a. Find the surface area in square feet that will be covered with shingles. Show all work.
- b. Find the surface area in square feet that will be covered with aluminum siding. Show all work.
- c. Find the volume of the shed in cubic feet. Show all work.
- d. Convert the volume of the shed to cubic yards. Show work. Round to two decimal places if necessary.

7. Consider the shapes below:



- a. Which of the shapes above are polyhedra?
- b. Which of the shapes above are prisms?
- c. Which of the shapes above are Platonic solids?
- d. Which of the shapes above are convex?

Please copy and sign: I pledge on my honor that I have not given or received any unauthorized assistance on this exam. [signed]