

# PRE TEST

## Building a Smokehouse: The Geometry of Prisms

A 6<sup>th</sup> grade module

in

### Math in a Cultural Context \*

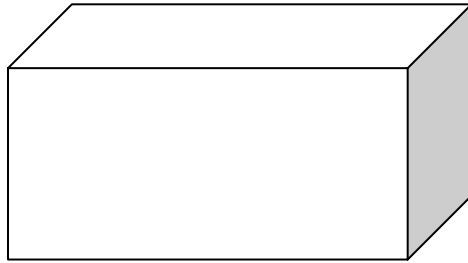
UNIVERSITY OF ALASKA FAIRBANKS

<b>Student Name:</b>
<b>Grade:</b>
<b>Teacher:</b>
<b>School:</b>
<b>Location of School:</b>
<b>Date:</b>

\*This project has been funded by the U.S. Department of Education, *Determining the Potential Efficacy of 6th grade Math in a Cultural Context Project*, Jerry Lipka, P.I.

**Total Score:**

**1. Below is a rectangular prism.**



**a. How many faces does the prism have?**

**Write your answer here: \_\_\_\_\_**

**b. How many vertices does the prism have?**

**Write your answer here: \_\_\_\_\_**

**c. How many edges does the prism have?**

**Write your answer here: \_\_\_\_\_**

**2. Through drawing, and in your own words, give a definition for a prism**

**a. In the space below, draw a prism.**

**b. Write a definition for a prism explaining the properties of a prism.**

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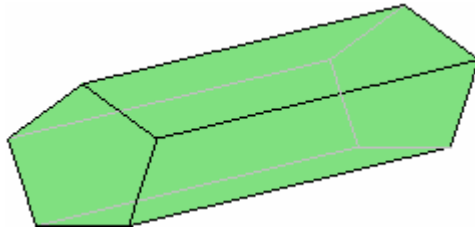
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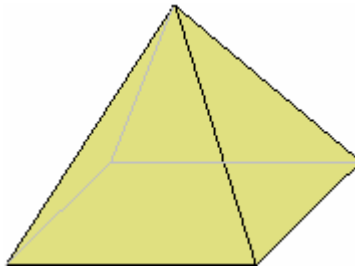
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3. Circle all the shapes below that are prisms.

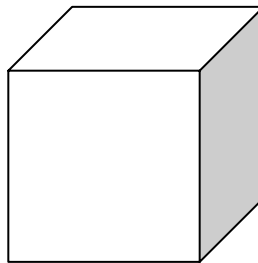
a.



b.



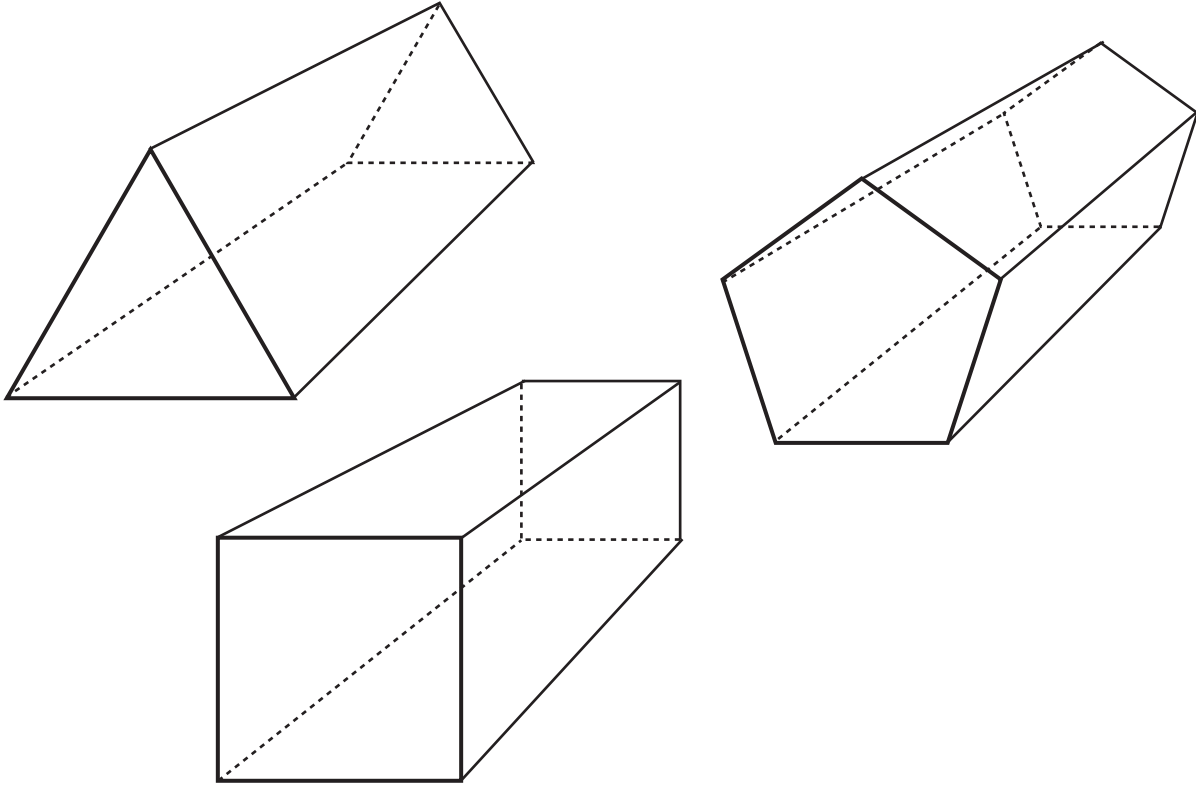
c.



d.

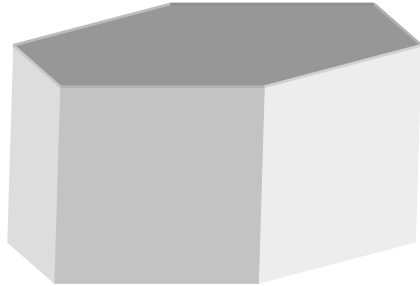


**4. Below are drawings of three different types of prisms. Circle the properties that these shapes have in common.**



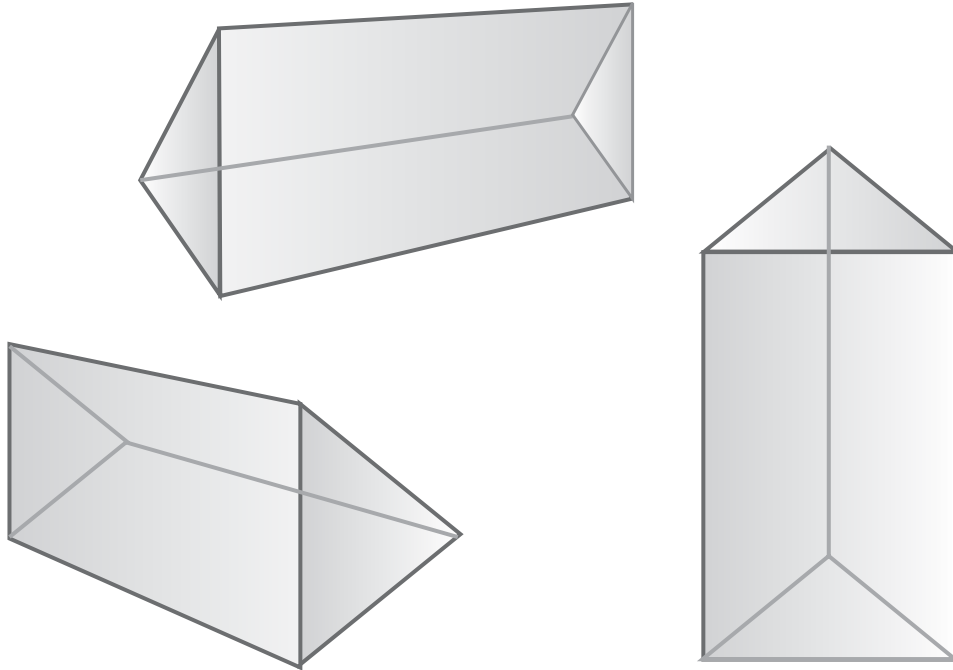
- a. All sides are parallel.**
- b. At least one pair of sides is parallel.**
- c. Lateral sides are congruent.**
- d. All pairs of sides are congruent.**

**5. What is the correct name for the following shape? Circle the correct name below.**



- a. Triangular prism**
- b. Rectangular prism**
- c. Hexagonal prism**
- d. Octagonal prism**

**6. Look at the drawings below. Are they the same shape or different shapes?  
How do you know?**



**a. Are they the same shape? Circle:      Yes   or   No**

**b. Explain your reasoning:**

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**7. You decide to put siding on your house. To figure out how much siding you will need, you should (circle one):**

**a. Add up the areas of each of the sides you want to cover.**

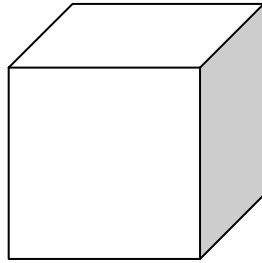
**b. Find how much the house will hold.**

**c. Find the size of the sides.**

**d. Measure the length of the house.**

**e. Measure the length of the diagonals of the house.**

**8. Below is a cube where each edge length is 3. What is the surface area?**



**Write your answer here: \_\_\_\_\_**

**9. You mark out a base of a rectangular shed that is 8 feet by 12 feet.**

**If you were to build 8-foot high walls for the rectangular shed with a flat roof, what is the total area needed to cover the outside of the walls and the roof? (The door will be cut out from one of the walls later, so just make all your walls solid.). You may draw the shed below to help find the total area to be covered.**

**a. Write your answer here: \_\_\_\_\_**

**b. Explain how you found your answer:**

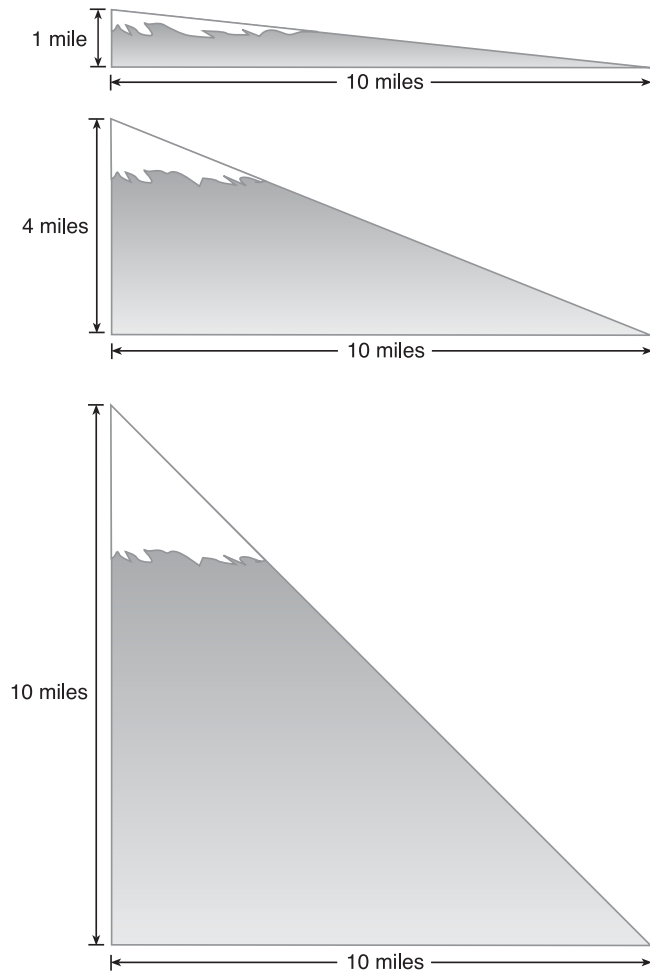
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10. Avalanches are a danger for anyone in the mountains of Alaska. The slope of the mountainside determines how much avalanche danger there is. In Alaska, because we tend to have dry, granular snow, the slope that has the most danger for avalanches is 0.4.

a. Look at the drawings of the mountains below. Circle the one which has a slope that would be the most likely to have an avalanche.



b. Explain your reasoning:

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**11. Can a triangle have two right angles?**

**a. Circle the correct answer:**

**YES**

**NO**

**b. Why or why not? Explain your answer.**

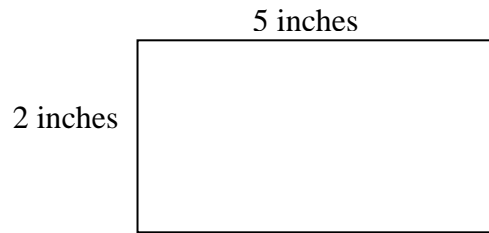
**(Feel free to include drawings with your explanation below.)**

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12. Below is a rectangle. If you taped the two short ends together to make a tube, what would be the circumference of this tube?



a. Write the correct answer here: \_\_\_\_\_

b. Explain your answer here:

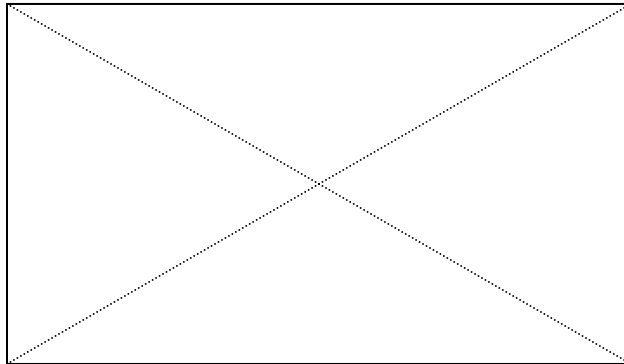
(Feel free to include drawings with your explanation below.)

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**13. Below is a rectangle with the center of the rectangle shown:**



**Locate the center of the prism below and show how you found it:**

