

PRE TEST

Patterns and Parkas

Investigating Geometric Principles, Shapes, Patterns, and Measurement
Grade Level 2

Math in a Cultural Context*

UNIVERSITY OF ALASKA FAIRBANKS

Student Name:
Grade:
Teacher:
School:
Location of School:
Date:

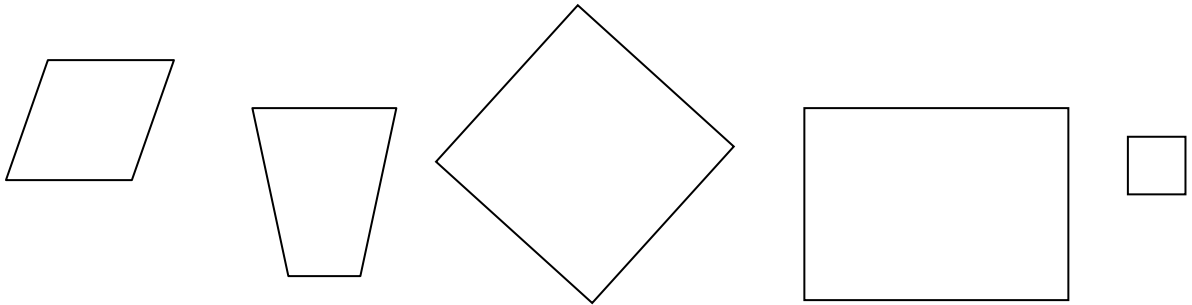
*This project has been funded by the U.S. Department of Education, *Returning the Gift: Systemic Implementation of an Effective Culturally Based Math Curriculum and Professional Development Program*, Jerry Lipka, P.I.

Total Score:

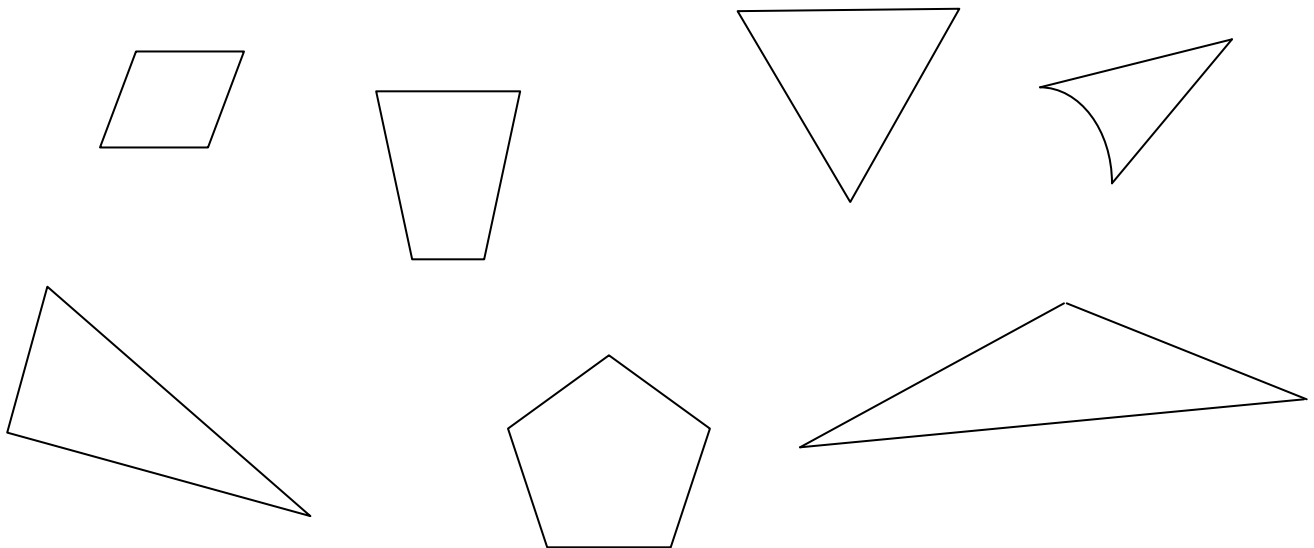
PLEASE NOTE:

FOR ITEM #8 STUDENTS WILL EACH NEED 6 RIGHT TRIANGLES.

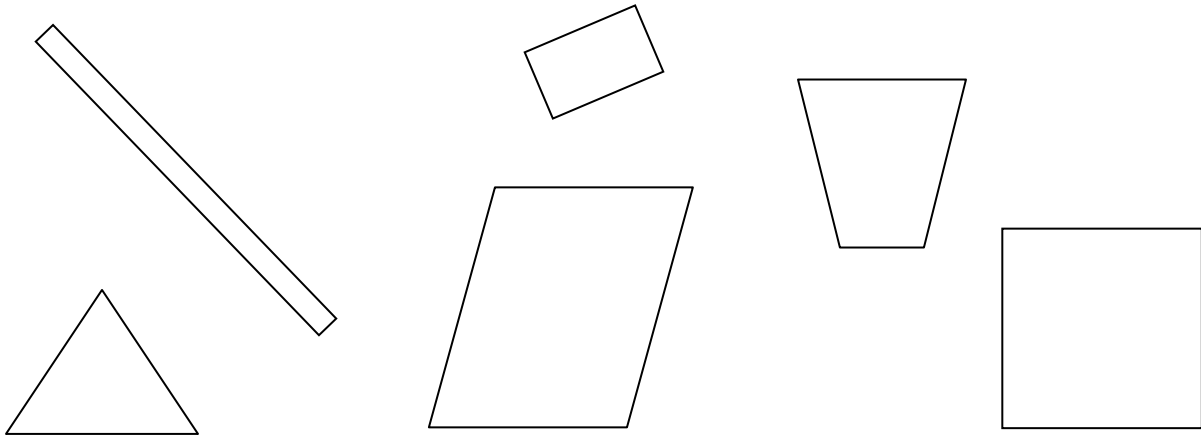
1. Draw a ring around the shapes that are squares.



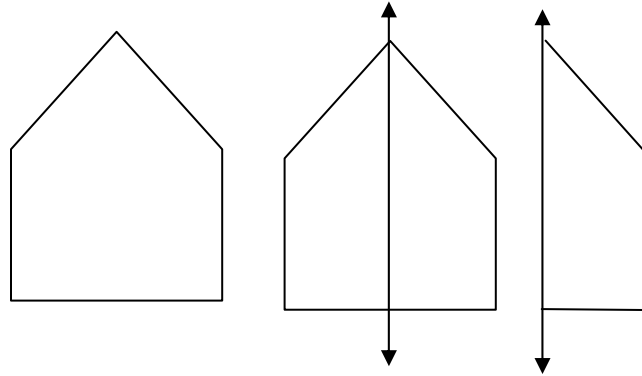
2. Draw a ring around the shapes that are triangles.



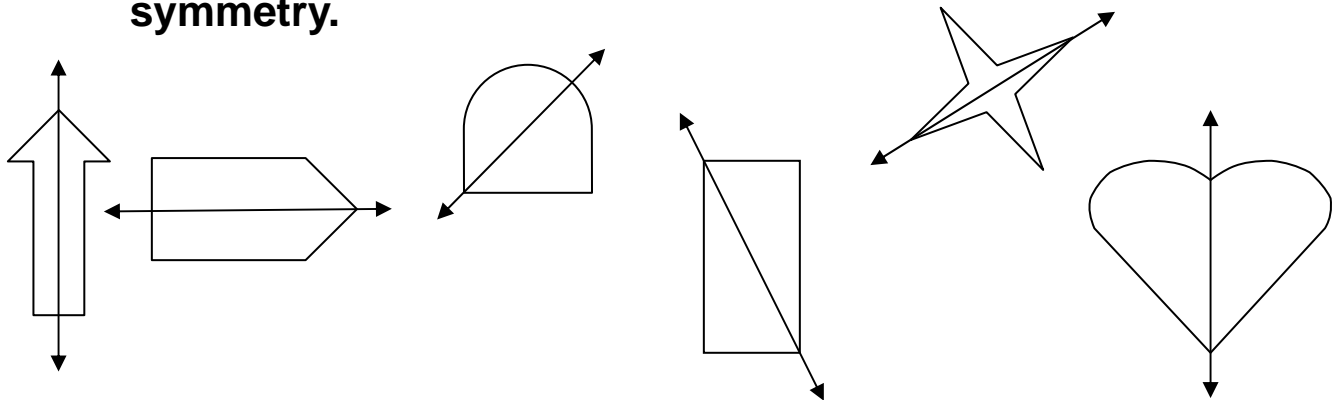
3. Draw a ring around the shapes that are rectangles.



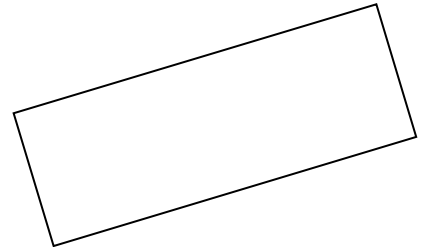
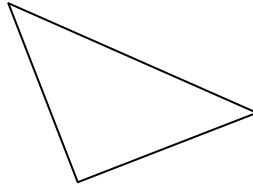
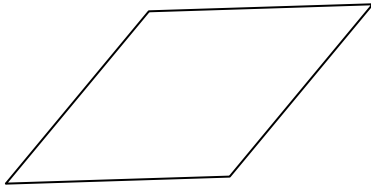
A shape has symmetry if you can fold it so that one side fits exactly on top of the other side. The line you fold the shape on is called a line of symmetry.



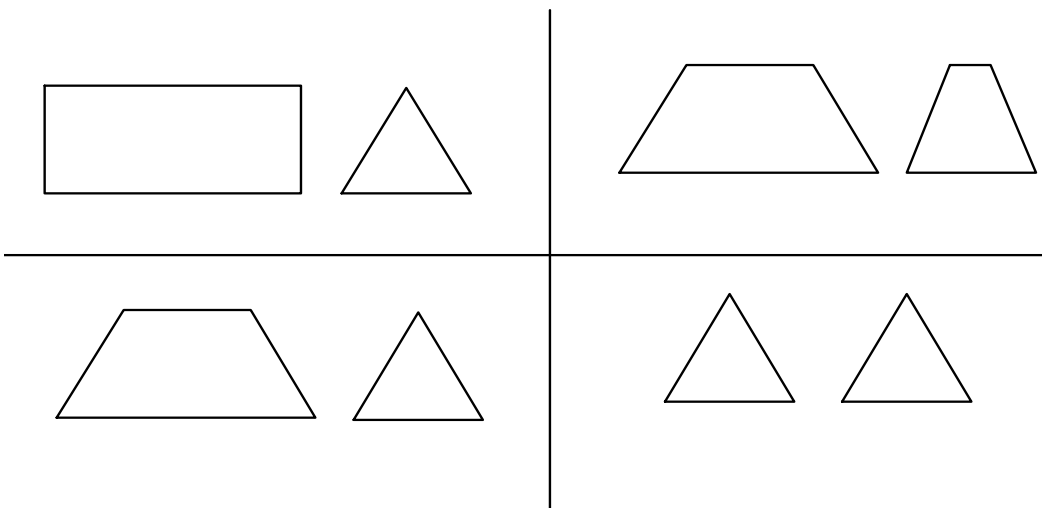
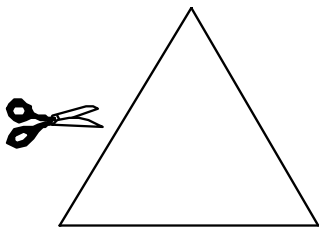
4. Draw a ring around the shapes that show a line of symmetry.



5. Draw all of the lines of symmetry in each shape below. Some shapes have more than one line of symmetry.



6. Pretend to cut the large triangle into two pieces with one cut. One of the choices below shows how the two pieces will look. Circle the correct choice.



7. Here is a rectangle.

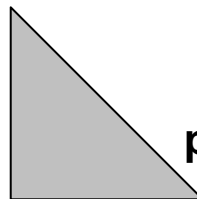


About how many rectangles long is the line below?
Draw marks on the line to show how many rectangles.



Write the answer here: _____

8. Take out six of the envelope.



pieces in your

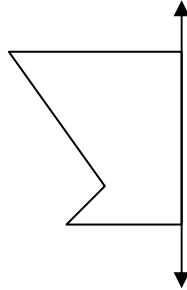
a. Use two of the triangles to make a 4-sided shape. Glue your shape here.

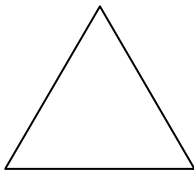
.

b. Use two of the triangles to make a different 4- sided shape. Glue your shape here.

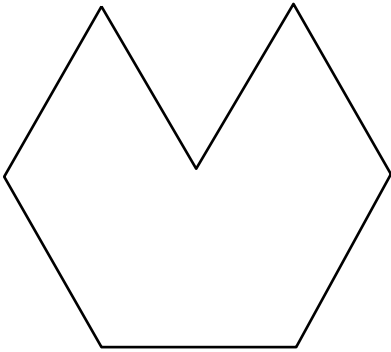
c. Use two of the triangles to make a 3-sided shape. Glue your shape here.

9. Half of this shape is missing and the line of symmetry is for the whole shape. Draw the half of the shape that is missing.

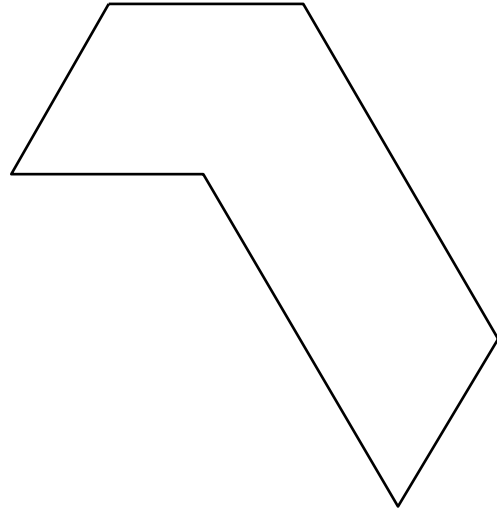


10. How many  fit in each shape?

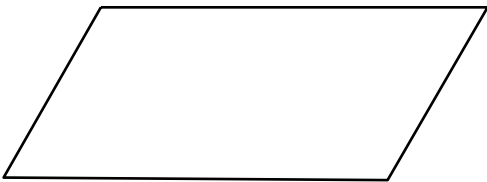
a. How many? _____



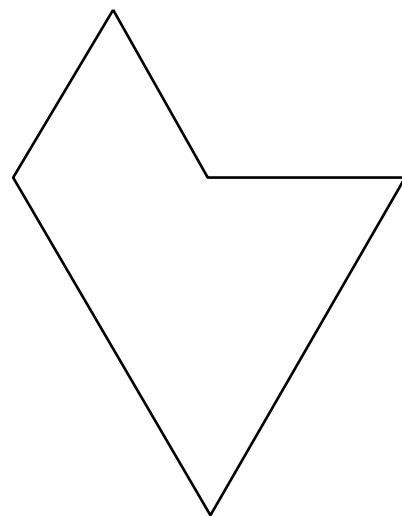
b. How many? _____



c. How many? _____



d. How many? _____



11. Here is the beginning of a pattern of squares.

Fig. 1



Fig. 2

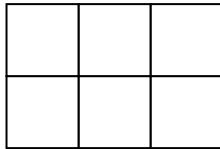


Fig. 3

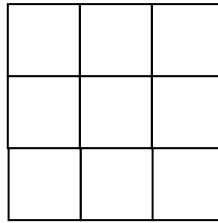


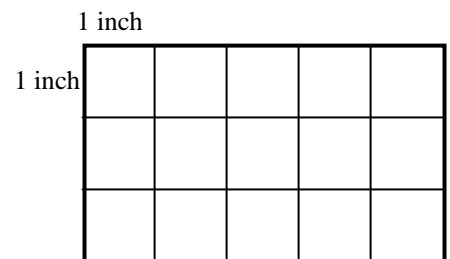
Fig. 4

a. Draw a picture of Fig. 4.

b. How many squares will be in Fig. 4?

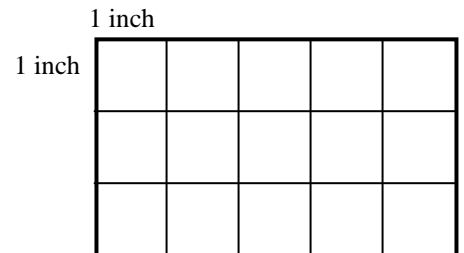
Write the answer here _____

12a. What is the total distance around the outside of the large rectangle to the right? Be sure to include the correct units.



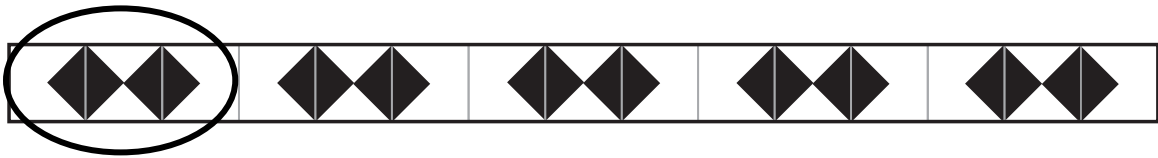
Write the answer here _____

b. What is the total space inside the large rectangle to the right? Be sure to include the correct units.



Write the answer here _____

13. In each pattern, two or more shapes repeat to make the whole pattern. Circle the shapes or parts that repeat to fill the strip. The first one has been done for you.



a.



b.



c.



d.



14. Look at Pattern 1

Pattern 1

A	B	A	B	A	B	A	B	A	B
---	---	---	---	---	---	---	---	---	---

Which of the patterns below repeat in the same way as Pattern 1? Circle all the correct answers. There is more than one correct answer.

a.

7	4	7	4	7	4	7	4	7	4
---	---	---	---	---	---	---	---	---	---

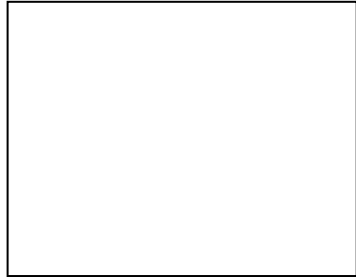
b.

7	4	4	7	7	4	4	7	7	4	4	7
---	---	---	---	---	---	---	---	---	---	---	---

c.

4	7	4	7	4	7	4	7	4	7
---	---	---	---	---	---	---	---	---	---

15 a. Use your pencil to draw lines to make the square below have 4 equal parts.



b. Use your pencil to shade $\frac{3}{4}$ of this square.



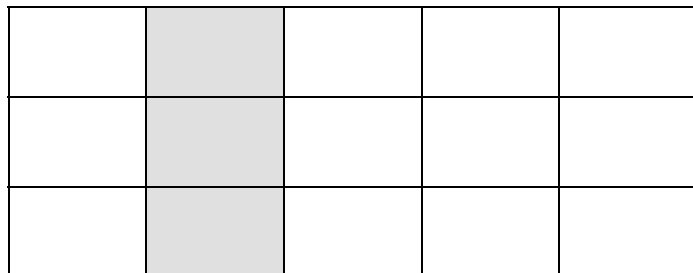
16. See the grid below. What fraction is shaded?

a. $\frac{5}{15}$

b. $\frac{3}{15}$

c. $\frac{1}{2}$

d. $\frac{3}{5}$



Appendix A

Cut out the six triangles shown below.

Each student receives these triangles for item number 8

