Quilt Project

Description: Plan and sew a completed 60 x 60 inch quilt.

Project Purpose: Use and apply knowledge of geometry, measurement, fractions, and the four operations to plan, sew, and complete a quilt.

Pattern Credit and YouTube Tutorial

CCSS.MATH.CONTENT.5.G.B.3

Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.

CCSS.MATH.CONTENT.5.G.B.4

Classify two-dimensional figures in a hierarchy based on properties.

CCSS.MATH.CONTENT.5.NBT.A.2

Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10.

CCSS.MATH.CONTENT.5.NBT.B.5

Fluently multiply multi-digit whole numbers using the standard algorithm.

CCSS.MATH.CONTENT.5.NBT.B.7

Add, subtract, multiply, and divide decimals to hundredths.

CCSS.MATH.CONTENT.5.NF.A.1

Add and subtract fractions with unlike denominators.

CCSS.MATH.CONTENT.5.NF.B.4.B

Find the area of a rectangle with fractional side lengths

CCSS.MATH.CONTENT.5.NF.B.6

Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

CCSS.MATH.CONTENT.5.NF.B.7

Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.

Name: _____ #: ____ Date: _____

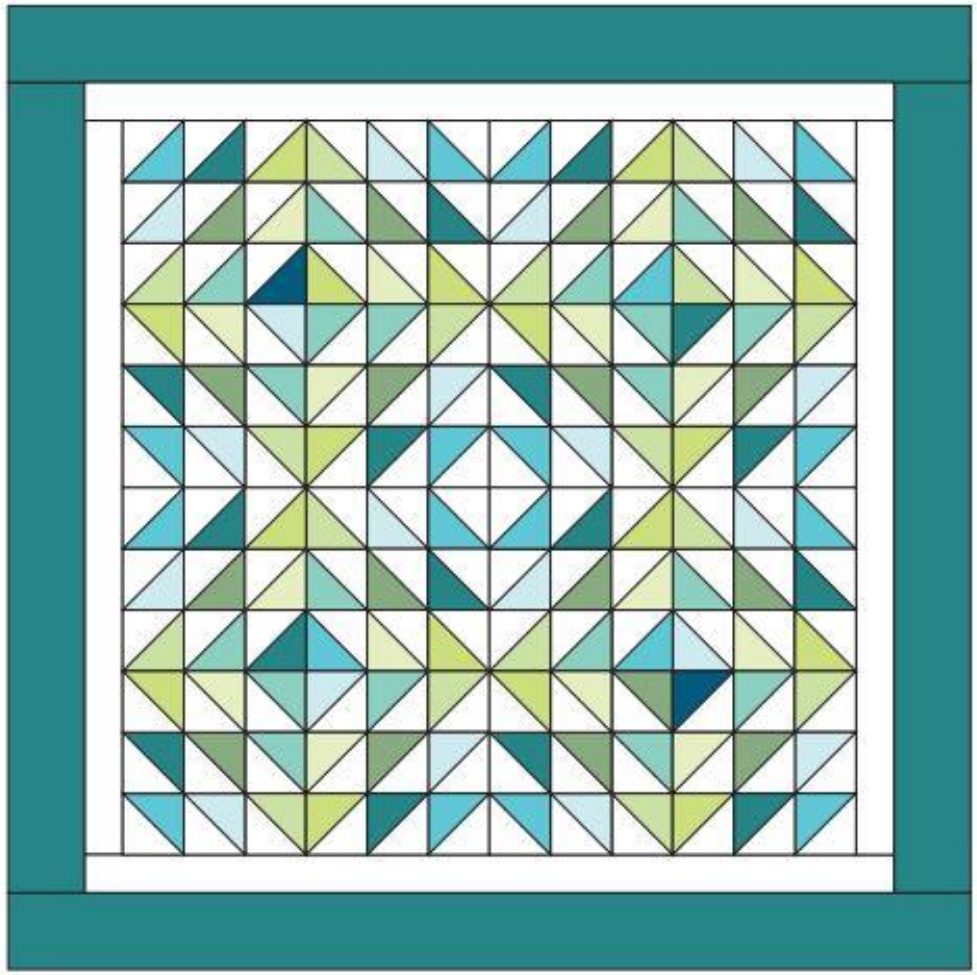
-Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10.

-Use equivalent fractions as a strategy to add and subtract fractions.

-Perform operations with multi-digit whole numbers and with decimals to hundredths.

Quilt Planning

Pattern: "Tranquil Triangles" by The Missouri Star Quilt Company



1. Can you determine what the perimeter of the quilt will be when finished?

_____

2. Can you determine the area of the quilt? Remember to write your answer in square inches.

_____

3. Is there a way to determine the number of triangles we will need without counting each individual triangle?

QUILT SIZE
61" x 61"

SUPPLIES
- **1 Package 10" Print Squares**
- **1 Package 10" Background Squares**
- **½ yd. Inner Border**
- **1 yd. Outer Border**
- **¾ yd. Binding**
- **4 yds. Backing**

Use the space provided to show your thinking and solve the problems.

4. The pattern tells us that we will need 1 package of 10 inch squares. One package costs $38.90. Is there a way to determine the cost of each of the 10 inch squares?

5. One white 10 inch square will cost us $2.86. How much will 10 of the squares cost us?

6. What's our total cost in fabric so far?

7. The pattern tells us that we will need ½ yard of inner border and ¾ yard of binding fabric. How much of this fabric will we need altogether?

8. Multiply this total by 4.

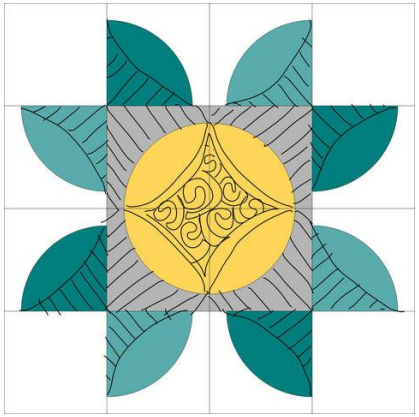
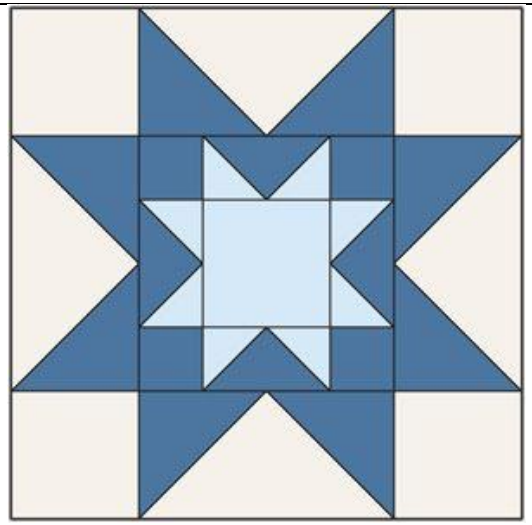
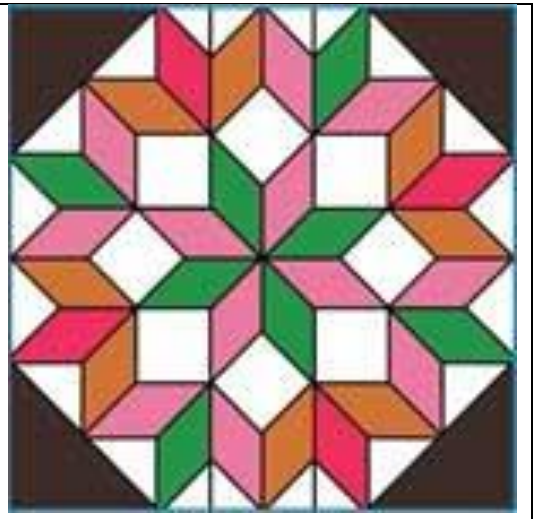
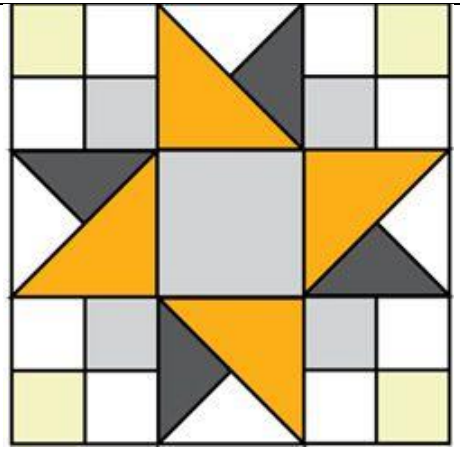
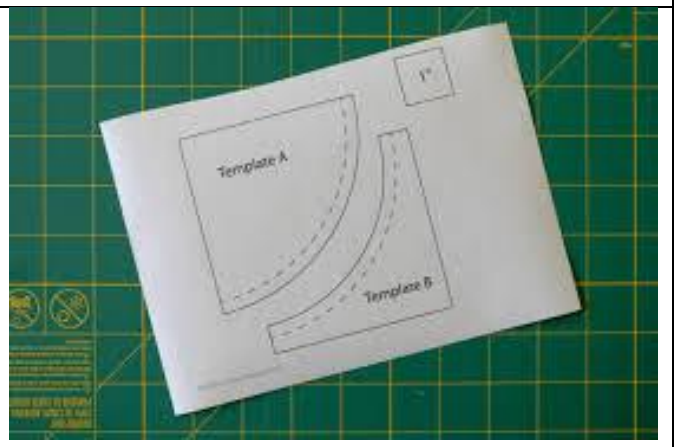
9. We will need to buy 5 rolls of white cotton thread at $1.39 each. How much will it cost us to buy thread?

10. Take the total cost from #6 and add the cost of the thread. If three people want to split the cost of this total, how can we find that amount?

Name: _____ #: _____ Date: _____

Identifying Polygons

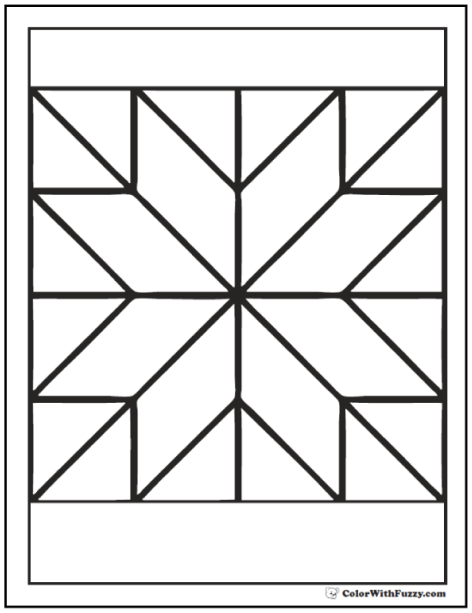
Classify two-dimensional figures into categories based on their properties.

		
polygon not polygons	polygon not polygons	polygon not polygons
		
polygon not polygons	polygon not polygons	polygon not polygons

Name: _____ #: _____ Date: _____

Quilt Construction: 2– Dimensional Figures

Directions: Trace over the drawing to find different shapes within the quilt block. Use your tracings to answer the questions about each block.



1. List the different shapes found in the block.

2. If squares are in the block, how many? _____

3. If triangles are in the block, how many? _____

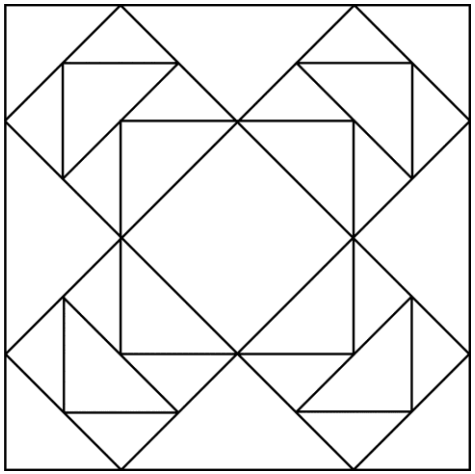
4. If triangles are in the block, label the type of triangles on the block.

5. If parallelograms are in the block, how many? _____

6. If rhombuses are in the block, how many? _____

7. Are there any other quadrilateral types shown in the block?

8. Are there any other regular polygons listed other than squares or triangles?



1. List the different shapes found in the block.

2. If squares are in the block, how many? _____

3. If triangles are in the block, how many? _____

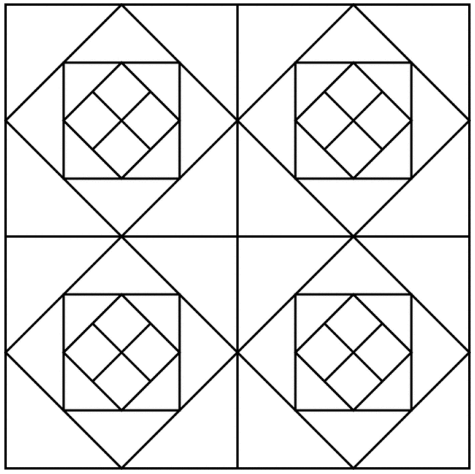
4. If triangles are in the block, label the type of triangles on the block.

5. If parallelograms are in the block, how many? _____

6. If rhombuses are in the block, how many? _____

7. Are there any other quadrilateral types shown in the block?

8. Are there any other regular polygons listed other than squares or triangles?



1. List the different shapes found in the block.

2. If squares are in the block, how many? _____

3. If triangles are in the block, how many? _____

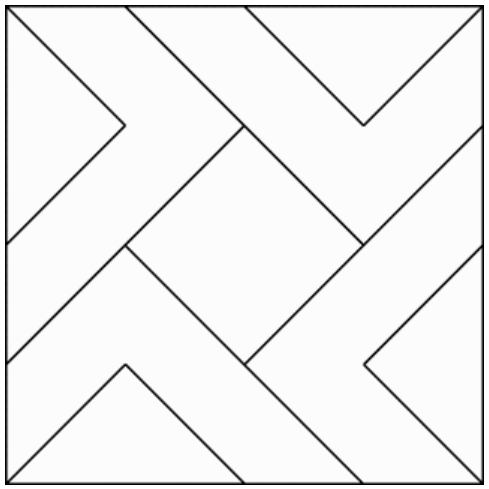
4. If triangles are in the block, label the type of triangles on the block.

5. If parallelograms are in the block, how many? _____

6. If rhombuses are in the block, how many? _____

7. Are there any other quadrilateral types shown in the block?

8. Are there any other regular polygons listed other than squares or triangles?



1. List the different shapes found in the block.

2. If squares are in the block, how many? _____

3. If triangles are in the block, how many? _____

4. If triangles are in the block, label the type of triangles on the block.

5. If parallelograms are in the block, how many? _____

6. If rhombuses are in the block, how many? _____

7. Are there any other quadrilateral types shown in the block?

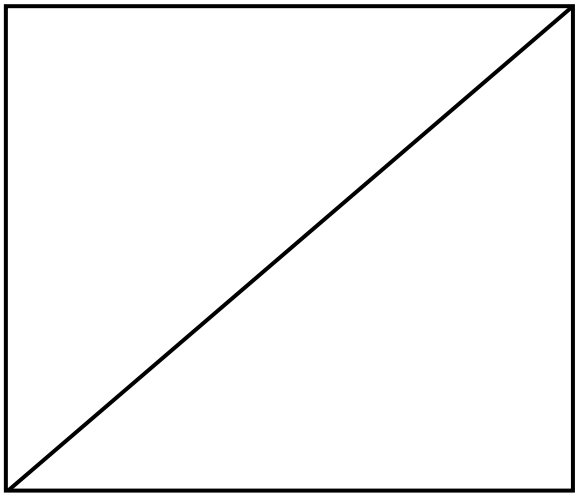
8. Are there any other regular polygons listed other than squares or triangles?

Name: _____ Date: _____ #: _____

Quilt Block Measurements

- Find the area of a rectangle with fractional side lengths.
- Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.
- Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
- Use equivalent fractions as a strategy to add and subtract fractions.
- Interpret division of a unit fraction by a non-zero whole number, and compute such quotients.

4 ½”



6 ¾”

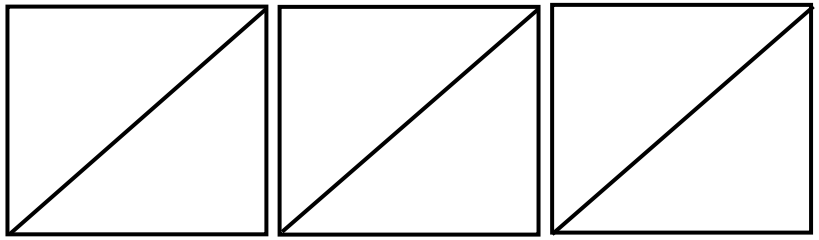
1. Find the perimeter and area of the quilt square.

perimeter= _____ area= _____

2. Use this information to determine the area of a quilt with 20 of these quilt squares.

area= _____

3 1/3” 3 1/3” 3 1/3”



2 1/8”

‘

3. These three quilt squares will need to be sewn together. We need to determine what the perimeter and area will be when these three shapes are sewn together.

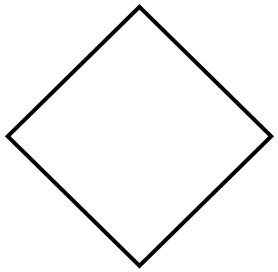
perimeter= _____ area= _____

4. There will be 4 people in one group. Each of them will need 3 1/8 yards of fabric for their quilt border. How much fabric will be needed altogether?

_____

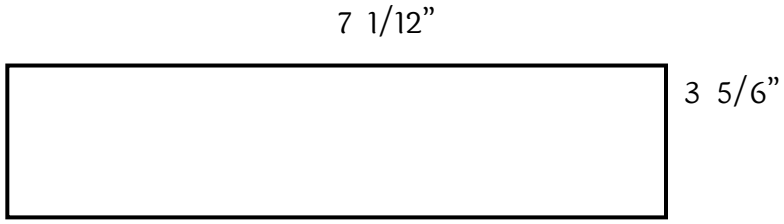
5. One quilt group could end up with 3/4 yards of fabric. If the group split this fabric evenly, how much would each person receive?

_____



6. Can you determine the perimeter of this square without adding each of the sides? Each side equals 3 3/5".

_____



7. Can you determine the perimeter of the fabric strip above?

_____

Name: _____ Date: _____ #: _____

Geometry: 2-Dimensional Shapes and Vocabulary

1. _____ congruent	a. lines that meet at a 90 degree angle
2. _____ vertices	b. a triangle that has one right angle
3. _____ adjacent	c. an 8 sided figure
4. _____ parallel	d. a 5 sided figure
5. _____ perpendicular	e. four sided figures
6. _____ right triangle	f. same, exactly equal
7. _____ hexagon	g. points at which lines meet and angles form
8. _____ equilateral triangle	h. a set of lines that will not cross
9. _____ octagon	i. properties or characteristics
10. _____ pentagon	j. a 6 sided figure
11. _____ attributes	k. a closed 2-dimensional figure with straight sides
12. _____ polygon	l. next to, beside
13. _____ quadrilateral	m. a triangle with equal sides and equal angles
14. _____ parallelogram	n. a quadrilateral with 1 set of parallel lines
15. _____ trapezoid	o. a quadrilateral with 2 sets of parallel lines