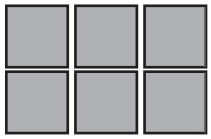
Name _____

Use Color Tiles to model each term. Then use the rule to write an expression for any term, *n*.

1.

_____



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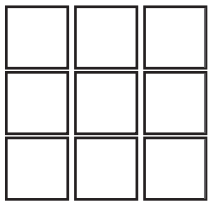
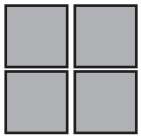


_____

_____

2.

_____



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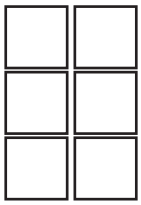


_____

_____

Using Color Tiles, model the expression. Then evaluate the expression for the given values of *n*. Sketch the models.

3. $5 \times n$, when $n = 1$, 3, and 5

_____

4. $n + 2$, when $n = 2$, 6, and 10

_____

Evaluate each expression when *n* = 1, 4, 9, and 0.

5. $4 \times n$

_____

6. $n + 10$

_____

7. $n \times 6$

_____

8. $1 \times n$

_____

9. $n + 3$

_____

10. $2n$

_____

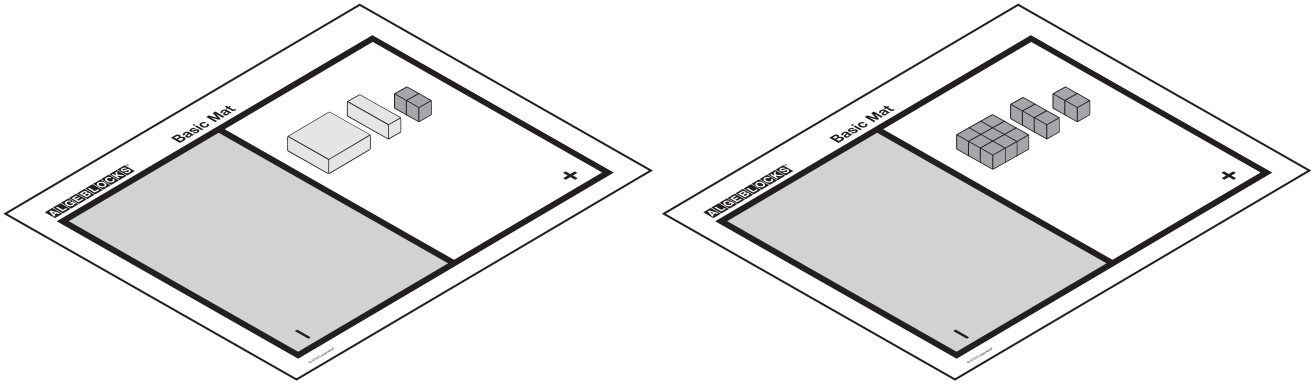
Name _____

Challenge! How many times can you evaluate the expression $n \times 9$?
How do you decide the value to use for n?

Name _____

Use Algeblocks and an Algeblocks Basic Mat to model the expression. Evaluate the expression and complete each inequality.

1. $x^2 + x + 2$



When $x = 3$, _____ ◯ 28

When $x = 4$, _____ ◯ 20

Using Algeblocks and an Algeblocks Basic Mat, model each expression and evaluate for the given values of *x*. Sketch the models.

2. $x^2 + 2x + 5$

When $x = 5$: _____

When $x = 10$: _____

3. $3x^2 + x + 1$

When $x = 1$: _____

When $x = 3$: _____

Evaluate each expression for the given values of *x*.

4. $2x^2 + 4x + 2$, when $x = 1$

_____

5. $x^2 + x + 8$, when $x = 4$

_____

6. $3x^2 + 2x + 4$, when $x = 2$

_____

7. $x^2 + 5x$, when $x = 5$

_____

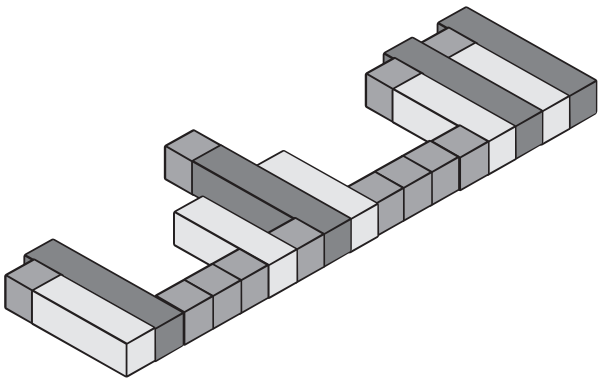
Name _____

Challenge! When you substitute a value into the expression $3x^2 + x + 11$, in what order do you simplify the operations? Choose a value for x and show the steps you use to find the value of the expression.

Name _____

Use Algeblocks to model the expression. Combine like terms. Write the terms. Then write the simplified expression.

1.



x terms: _____

y terms: _____

constant: _____

= _____

Using Algeblocks, model the expression. Combine like terms. Write the simplified expression.

2. $x + 2y + 3x + 5 + 2x + 3y + 2y + 6 + 4y + 5x + y + 4x$

_____

Combine like terms. Write each expression in simplified form.

3. $5x + 3y + 5 + 4x + 3y + y + 8$

_____

4. $6y + 4x + 2x + 9y + 3y + 2$

_____

5. $8y + x + 2 + 6y + 4y + y$

_____

6. $x + 3y + 1 + 2x + 3x + y + 1$

_____

7. $x + y + 10 + x + 6x + 10$

_____

8. $10y + 4y + 2 + 4 + 2y + y + 5$

_____

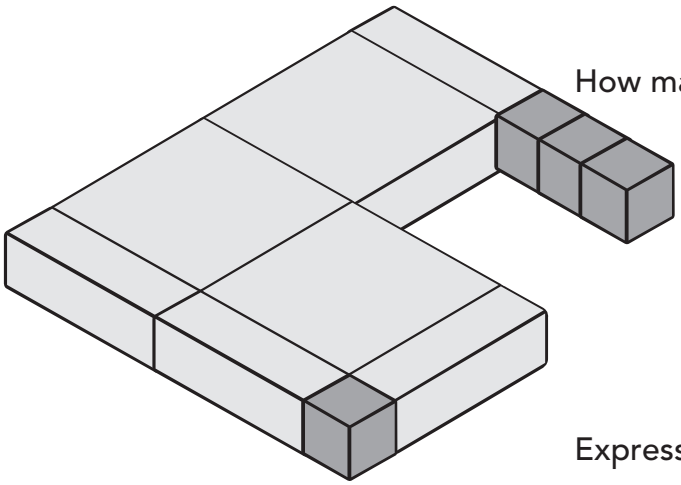
Name _____

Challenge! Are x and x^2 like terms? Explain.

Name _____

Use Algeblocks to model the irregular shape shown. Answer the questions. Write an expression for the perimeter of the shape in simplest form.

1.



How many sides does the shape have?_____

What expressions represent the lengths of the sides?

_____

_____

_____

Expression for perimeter: _____

Using Algeblocks, build an irregular shape. Sketch the model. Write expressions for the lengths of each side. Write the expression for the perimeter of the shape.

2.

Lengths of the sides:

_____

_____

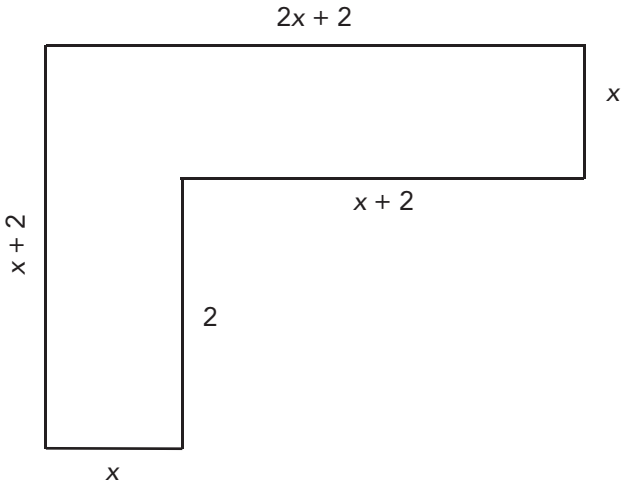
_____

Expression for perimeter:

_____

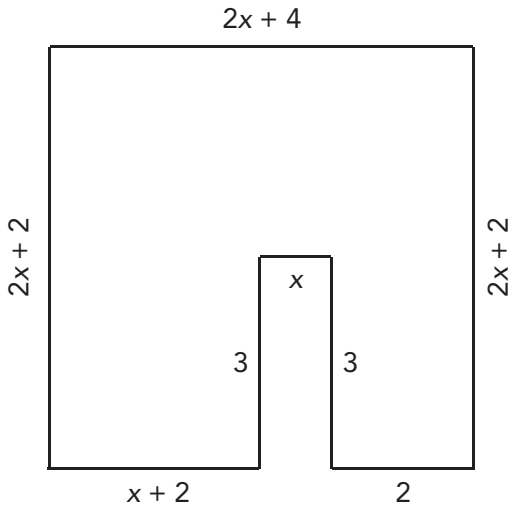
Write an expression for the perimeter of each shape.

3.



_____

4.



_____

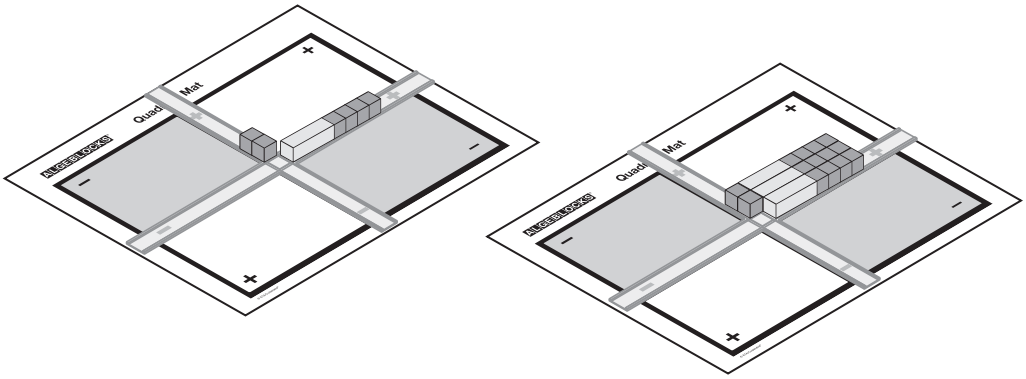
Name _____

Challenge! Write a description of how to find the perimeter of an irregular shape when the lengths of the sides are expressions that contain variable and constant terms. Use an example.

Name _____

Use Algeblocks, an Algeblocks Quadrant Mat, and a Factor Track to model the expression shown. Write the factors and their product.

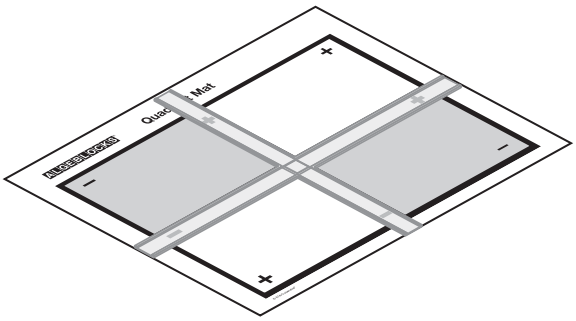
1.



_____ = _____

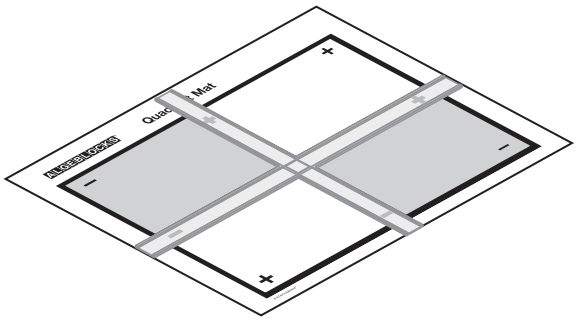
Using Algeblocks, an Algeblocks Quadrant Mat, and a Factor Track, model each pair of factors and their product. Sketch the model. Write each product.

2. $2(y + 3)$



_____

3. $2(2y + 1)$



_____

Find each product using the Distributive Property.

4. $2(x + 5)$

_____

5. $2(3y + 4)$

_____

6. $4(y + 1)$

_____

7. $2(4x + 1)$

_____

8. $5(x + 10)$

_____

9. $2(2y + 5)$

_____

Name _____

Challenge! Will the Distributive Property work with subtraction? Use $3(x - 1)$ as an example. Explain.

Name _____

Use Cuisenaire Rods to model each equation containing the variable *b* and the operation stated. Solve the equation.

1. addition

_____

2. multiplication

_____

Using Cuisenaire Rods, model the given equation. Sketch the model. Solve the equation.

3. $a + 8 = 21$

_____

4. $3 \times d = 15$

_____

Solve each equation.

5. $4 + f = 19$

_____

6. $3 \times g = 15$

_____

7. $22 = s + 9$

_____

8. $13 + j = 27$

_____

9. $7 \times k = 28$

_____

10. $9 \times p = 45$

_____

Name _____

Challenge! How can you use related facts to help you solve the equations in this lesson? Give an example.

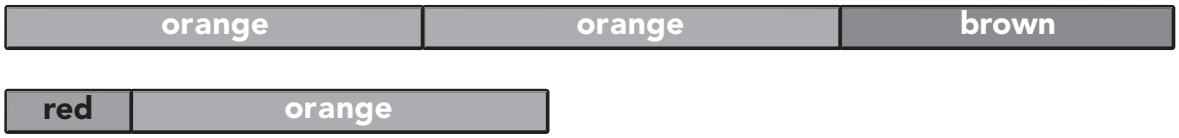
Name _____

Use Cuisenaire Rods to model each equation. Write an addition equation using the variable *n*. Use the Rods to solve the equation.

1.

_____

2.



_____

Using Cuisenaire Rods, model the given equation. Sketch the model. Solve the equation.

3. 18 = 2 + *q*

_____

4. 30 = 23 + *r*

_____

Solve each equation.

5. 12 + *w* = 31 _____

6. 35 = *t* + 14 _____

7. 42 = *u* + 28 _____

8. 11 + *v* = 29 _____

9. 7 + *c* = 19 _____

10. 19 + *x* = 25 _____

Name _____

Challenge! How can you check your answer after you have solved an equation?

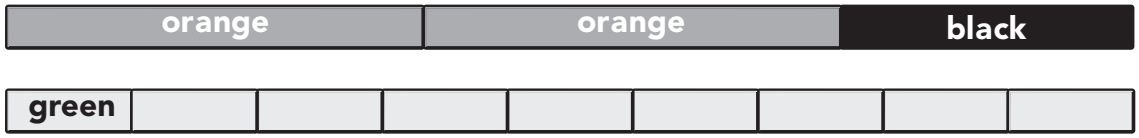
Name _____

Use Cuisenaire Rods to model the equation. Write a multiplication equation with the variable *z*. Use multiplication or division to solve the equation.

1.

_____

2.



_____

Using Cuisenaire Rods, model the given equation. Sketch the model. Solve the equation.

3. $24 = 8 \times a$

_____

4. $35 = b \times 5$

_____

Solve each equation.

5. $12 \times d = 36$ _____

6. $55 = m \times 11$ _____

7. $40 = f \times 8$ _____

8. $9 \times g = 72$ _____

9. $6 \times h = 54$ _____

10. $5 \times k = 25$ _____

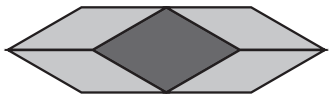
Name _____

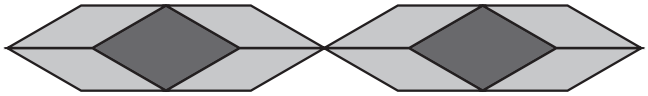
Challenge! How are multiplication and division related? How are the operations used to solve equations in this lesson? Show an example and draw a picture to help.

Name _____

Use Pattern Blocks to model the pattern. Complete the table to show the relationship in the pattern. Write a rule for the pattern.

1.





Let x = number of  .

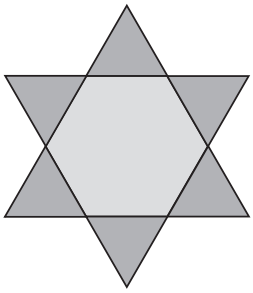
Let y = number of  .

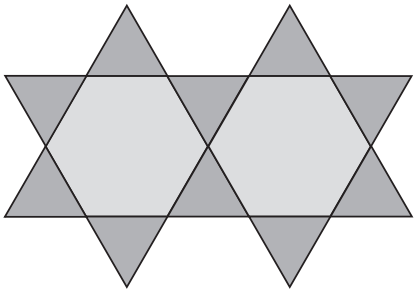
x	1	2	3	4	5	6
y	4	8				

Rule: _____

Using Pattern Blocks, model the figure shown. Then create a pattern. Sketch the pattern. Make a table that shows the relationship in the pattern. Write the rule.

2.





Make a table for each function rule.

3. $y = x + 5$

4. $y = 4x$

5. $y = 7 + x$

Name _____

Challenge! Design your own pattern using Pattern Blocks. Then make a table to show the relationship of the numbers of each block as the pattern grows. Write the rule.