The Clothesline

Name: _____

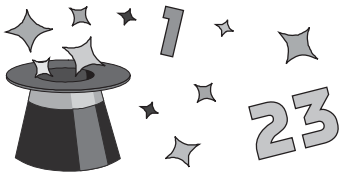
Date: _____

For each set, record the given values, expressions or drawings. After the discussion of their placement on the clothesline, record them on the number line.

1. _____, _____, _____

2. _____, _____, _____

3. _____, _____, _____



NUMBER TRICKS

In the column titled "Your number," write the results of each step of the number trick listed on the left. Once other solutions are shown by your classmates, you may copy down two of the solutions in the two columns titled "Another Number." Analyze these three solutions, and make a conjecture to what you think the final result of the number trick will always be. Finally, in the fourth column, write the algebraic expression that represents the cumulative steps of the number trick. On the second to last line of this column should be the complete expression; then write the simplified version.

		Your Number	Another Number	Another Number	Algebraic Expression
TRICK #1	Pick a number	_____	_____	_____	_____
	Multiply by 2	_____	_____	_____	_____
	Add 3	_____	_____	_____	_____
	Subtract twice the original number	_____	_____	_____	_____
	Common Result: _____			**Simplified Expression**:	_____
TRICK #2	Pick a number	_____	_____	_____	_____
	Add 4	_____	_____	_____	_____
	Multiply by 2	_____	_____	_____	_____
	Subtract 7	_____	_____	_____	_____
	Subtract twice the original number	_____	_____	_____	_____
	Common Result: _____			**Simplified Expression**:	_____
TRICK #3	Pick a number	_____	_____	_____	_____
	Add 2	_____	_____	_____	_____
	Multiply by 3	_____	_____	_____	_____
	Subtract 6	_____	_____	_____	_____
	Subtract twice the original number	_____	_____	_____	_____
	Common Result: _____			**Simplified Expression**:	_____
TRICK #4	Pick a number	_____	_____	_____	_____
	Add 5	_____	_____	_____	_____
	Multiply by 2	_____	_____	_____	_____
	Subtract 9	_____	_____	_____	_____
	Subtract the original number	_____	_____	_____	_____
	Common Result: _____			**Simplified Expression**:	_____

ASSIGNMENT

Create a number trick similar to those shown above. The trick must be unique. Demonstrate the solution with three different numbers, and then show the algebraic expression that represents each step of the number trick. Finally, write the simplified expression that represents the result of each trick. The higher the degree of difficulty, the higher the grade.

Number Tricks *Rediscovered*

FACTORING

In the column titled "Your number," write the results of each step of the number trick listed on the left. Once other solutions are shown by your classmates, you may copy down two of the solutions in the two columns titled "Another Number." Analyze these three solutions, and make a conjecture to what you think the final result of the number trick will always be. Finally, in the fourth column, write the algebraic expression that represents the cumulative steps of the number trick. On the second to last line of this column should be the complete expression; then write the factored version.

		Your Number	Another Number	Another Number	Algebraic Expression
TRICK #1	Pick a number	_____	_____	_____	_____
	Square it	_____	_____	_____	_____
	Add 4 times the original number	_____	_____	_____	_____
	Add 3	_____	_____	_____	_____
	Common Result: _____			**Factored Form:**	_____
TRICK #2	Pick a number	_____	_____	_____	_____
	Square it	_____	_____	_____	_____
	Subtract 7 times the original number	_____	_____	_____	_____
	Add 10	_____	_____	_____	_____
	Common Result: _____			**Factored Form:**	_____
TRICK #3	Pick a number	_____	_____	_____	_____
	Square it	_____	_____	_____	_____
	Add the original number	_____	_____	_____	_____
	Subtract 12	_____	_____	_____	_____
	Common Result: _____			**Factored Form:**	_____
TRICK #4	Pick a number	_____	_____	_____	_____
	Square it	_____	_____	_____	_____
	Multiply by 6	_____	_____	_____	_____
	Subtract the original number	_____	_____	_____	_____
	Subtract 2	_____	_____	_____	_____
	Common Result: _____			**Factored Form:**	_____

ASSIGNMENT

Create a number trick similar to those above. The trick must be unique. Demonstrate the solution with three different numbers, and then show the algebraic expression that represents each step of the number trick, including the factored form.

Number Tricks *Rediscovered*
Rational expressions

In the column titled "Your number," write the results of each step of the number trick listed on the left. Once other solutions are shown by your classmates, you may copy down two of the solutions in the two columns titled "Another Number." Analyze these three solutions, and make a conjecture to what you think the final result of the number trick will always be. Finally, in the fourth column, write the algebraic expression that represents the cumulative steps of the number trick. On the second to last line of this column should be the complete expression; then write the factored version.

		Your Number	Another Number	Another Number	Algebraic Expression
TRICK #1	Pick a number	_____	_____	_____	_____
	Multiply by 5	_____	_____	_____	_____
	Subtract 15	_____	_____	_____	_____
	Divide by 5	_____	_____	_____	_____
	Common Result: _____			**Factored Form:**	_____
				Simplified Form:	_____
TRICK #2	Pick a number	_____	_____	_____	_____
	Square it	_____	_____	_____	_____
	Subtract 6 times the original number	_____	_____	_____	_____
	Add 8	_____	_____	_____	_____
	Divide by 2 less than the original number	_____	_____	_____	_____
	Common Result: _____			**Factored Form:**	_____
				Simplified Form:	_____
TRICK #3	Pick a number	_____	_____	_____	_____
	Square it	_____	_____	_____	_____
	Multiply by 3	_____	_____	_____	_____
	Subtract the original number	_____	_____	_____	_____
	Divide by the original number	_____	_____	_____	_____
	Common Result: _____			**Factored Form:**	_____
				Simplified Form:	_____

ASSIGNMENT

Create a number trick similar to those above. The trick must be unique. Demonstrate the solution with three different numbers, and then show the algebraic expression that represents each step of the number trick, including the simplified form.

Name _____

Bumping Airlines

Out of 615 million airline passengers last year, half a million were bumped from flights. 9 out of 10 of those were voluntary. What percentage of booked passengers were involuntarily bumped from a flight?

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Algebra 2 Name _____

Optimum Bait

My brother Matt owns Optimum Bait Company. Optimum Bait Company manufactures fishing lures. The monthly cost to run the factory is $4200 and the cost of producing each lure is an additional $0.25 per lure.

If he produces 1000 lures in one month, what is the average production cost per lure?

Create a function, C(x), that models the average production cost per lure.

Calculate the average production cost per lure if he produces 4000 lures in one month? 8000 lures? 12000 lures? 420000 lures?

As he produces more lures what price does the average cost of production approach? Why?

If he wants the average cost of production to be $1, how many lures would he have to produce in one month?

If he wants to make a profit of at least $4000 per month, what is the minimum number of lures he would have to produce if he sells every lure he produces for $4?

ALGEBRA 2
Opening Quiz

CONCEPTS & PROCEDURES

Practices 7 & 8

If inflation were to average 3% annually, what will be the cost of a $6.60 Double-Double meal from In-N-Out when you are 52 years old?

CRITICAL THINKING

Practices 1 & 6

A number is divided by a quantity four less than itself, represented by the expression below. Which values of x will result in a quantity less than one? Greater than one? Which values of x cannot be used at all, and why?

$$\frac{x}{x-4}$$

COMMUNICATE REASONING

Practice 2 & 3

Talk-a-Lot cell phone service offers a monthly plan of $2 basic rate, plus 5 cents per minute. Talk-Some-More offers a monthly plan of $5 basic rate, but only 3 cents per minute. Which plan is the least expensive and why?

CONSTRUCT MODELS

Practices 4 & 5

The height of a toy rocket launched from the ground after a given time is $h(t) = 32t - 16t^2$. When will the rocket return to the ground?

Creativity & Collaboration

Take-Aways

How successful was your brain surgery?

Which No-Options Engagement technique are you most likely to use?

How might you implement Boot Camp?

How might you bring HOT tasks to your students?

Call to Action

What will you do first to reach and teach ALL kids?

When, within the first two weeks of school will you do this?

What transformation will you communicate to your students on the first day of school?