



Math Virtual Learning

6th Grade Math

Creating Equivalent Algebraic Expressions

April 14, 2020



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Lesson: April 14, 2020

Objective/Learning Target:
Students will be able to create equivalent algebraic expressions.

Warm up

Write an expression for each of the following on a piece of paper:

The sum of a number and 23

Fourteen less than a number

The product of a number and 8

The quotient of 24 and a number

Warm up **answers**

Write an expression for each of the following:

The sum of a number and 23

$$n + 23$$

Fourteen less than a number

$$n - 14$$

The product of a number and 8

$$8n$$

The quotient of 24 and a number

$$24/n$$

Remember: a fraction line represents division.

What is an equivalent expression?

Equivalent expressions are expressions that have the same value. This would be true for any value given to the variables within the expression.

*Because it is not possible to check every possible value for a variable, we can use the properties of operations to determine if two expressions are equivalent.

[Khan Academy Example](#)

Properties of Operations

| Property | Example |
|--|--|
| Commutative Property of Addition: When adding, changing the order of the numbers does not change the sum | $a + b = b + a$ |
| Commutative Property of Multiplication: When multiplying, changing the order of the numbers (factors) does not change the product. | $ab = ba$ |
| Associative Property of Addition: When adding more than two numbers, the grouping of the numbers does not change the sum. | $(a + b) + c = a + (b + c)$ |
| Associative Property of Multiplication: When multiplying more than two numbers, the grouping of the numbers (factors) does not change the product | $(ab)c = a(bc)$ |
| Distributive Property: Multiplying a number by a sum or difference is the same as multiplying by each number in the sum or difference and then adding or subtracting. | $a(b + c) = ab + ac$ $a(b - c) = ab - ac$ |

Practice

Which expressions are equivalent to $6(h + 4)$?

* Make sure to write down your work on a piece of paper

A) $6h + 4$

B) $6h + 24$

C) $H + 10$

D) $4(h + 4) + 2(h + 4)$

E) $2(3h + 12)$

[Walkthrough Here](#)

Answer: B, D, E

More Practice

Show your work on a piece of paper so you can check your answers on the next slide.

Determine if the following pairs of expressions are equivalent. If not, show how you know.

$$x + 5 + 7x \text{ and } 5x + 7x$$

$$3(x + 2) + 8 \text{ and } 3x + 14$$

Determine which of the following expressions is NOT equivalent to the other. Explain.

$$12p + 8$$

$$6p + 8 + 6p$$

$$4(p + 2) + 3p$$

$$4(3p + 2)$$

More Practice **answers**

Determine if the following pairs of expressions are equivalent. If not, show how you know.

$$x + 5 + 7x \text{ and } 5x + 7x$$

$$3(x - 2) + 8 \text{ and } 3x + 2$$

No; x and 5 cannot be combined, Yes, they are equivalent
so $x + 5 + 7x = 8x + 5$

Determine which of the following expressions is NOT equivalent to the other. Explain.

$$12p + 8$$

$$6p + 8 + 6p$$

$$4(p + 2) + 3p$$

$$4(3p + 2)$$

[Walkthrough Here](#)



This will be $7p + 8$

Reflection

On a piece of paper, write your understanding of today's lesson. Use the chart to help you. Go into detail explaining where you are struggling, or where you are succeeding.

Email your teacher if you feel like you need further assistance with today's lesson!

Rate Your Understanding

| 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
|  |  |  |  |  |
| I am so lost. | I don't really get it. | I'm starting to get it. | I got this. | I could teach it. |

Additional Resources

[Khan Academy](#)

[DESMOS Activity 1](#)

[DESMOS Activity 2](#)

[Game 1](#)

[Game 2](#)

Summary/Reflection:

Write a reflection on today's lesson and explain at least two examples from your practice.