

NAME

DATE

PERIOD

Lesson 20 Summary

There are many ways to write equivalent expressions that may look very different from each other. We have several tools to find out if two expressions are equivalent.

- Two expressions are definitely not equivalent if they have different values when we substitute the same number for the variable. For example, $2(-3 + x) + 8$ and $2x + 5$ are not equivalent because when x is 1, the first expression equals 4 and the second expression equals 7.
- If two expressions are equal for many different values we substitute for the variable, then the expressions *may* be equivalent, but we don't know for sure. It is impossible to compare the two expressions for all values. To know for sure, we use properties of operations. For example, $2(-3 + x) + 8$ is equivalent to $2x + 2$ because:

$$2(-3 + x) + 8$$

$$-6 + 2x + 8$$

$$2x + -6 + 8$$

$$2x + (-6 + 8)$$

$$2x + 2$$

by the distributive property

by the commutative property

by the associative property