

NWEA Assessment Item Illustrating 7.EE.A.1

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Domain: Expressions and Equations

7.EE.A: Use properties of operations to generate equivalent expressions.

Calculator Availability: No

Select all the expressions that are equivalent to $-4(8x - 3)$.

<input type="checkbox"/> A. $-20x$
<input type="checkbox"/> B. $4(3 - 8x)$
<input type="checkbox"/> C. $-32x - 12$
<input type="checkbox"/> D. $2(-16x + 6)$
<input type="checkbox"/> E. $5 - 9(8x - 3)$

Alignment: 7.EE.A.1: Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

Operating with expressions is foundational for work with algebra in later grades. This item requires students to apply their knowledge of the distributive property, commutative property, and properties of operations to identify equivalent expressions. The use of negative integers reinforces the grade level expectation for operating with rational numbers in all forms.

Coherence: In grade 5, students became more familiar with grouping symbols within numerical expressions.^{5.OA.A.1} In grade 6, students extended properties of numerical operations to properties of algebraic operations to transform and manipulate simple expressions.^{6.EE.A.3} In grade 7, students start to simplify more complex linear expressions with rational coefficients, including those whose transformation may require understanding of rules for operating with negative numbers.^{7.EE.A.1} In grade 8, students will apply this knowledge to solving more complex equations.^{8.EE.B.7}

Rigor: This item attends to conceptual understanding and procedural skill. Students must relate the concept of equivalence with the commutative and distributive properties. Students operates with negative integers as a grade-level procedural skill to arrive at the solution. Because the use of negative integers reinforces the grade level expectation for operating with rational numbers in all forms, no calculator tool is provided.

Answer Key:

Select all the expressions that are equivalent to $-4(8x - 3)$.

A. $-20x$

B. $4(3 - 8x)$

C. $-32x - 12$

D. $2(-16x + 6)$

E. $5 - 9(8x - 3)$

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