Content Standard	***MAFS.8.EE*** *Expressions and Equations* ***MAFS.8.EE.3*** *Analyze and solve linear equations and pairs of simultaneous linear equations.* ***MAFS.8.EE.3.7*** Solve linear equations in one variable. ***MAFS.8.EE.3.7a*** Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers). ***MAFS.8.EE.3.7b*** Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.
Assessment Limit	Numbers in items must be rational numbers.
Calculator	Yes
Item Types	Equation Editor Matching Item Multiple Choice Multiselect Open Response
Context	Allowable

Sample Item	Item Type
How many solutions does the equation shown have? $\frac{1}{4}(x-3) = 3x - \frac{11}{4}x - 3$	Open Response
What values of a and b would make the equation shown have infinitely many solutions? $3x = ax + b$	Equation Editor
What values of a and b, in the equation shown, will result in an equation whose only solution is $x = 3$? $\frac{-3}{5}(x-5) + 4x = ax + b$	Equation Editor
Solve the equation shown for x. $2(x-4) = 4x + 3x + 6$	Equation Editor

<table>
<tr><th>Sample Item</th><th>Item Type</th></tr>
<tr><td>Explain why $3(x+4)=3(x-5)$ has no solution. Choose the best response below.

A. The x-terms are the same, but the constant terms are different.
B. The x-terms are different, but the constant terms are the same.
C. The x-terms are the same, and the constant terms are same.
D. The x-terms are different, and the constant terms are different.</td><td>Multiple Choice</td></tr>
<tr><td>Enter values of a and b for which $x = 4$ is a solution of the equation shown.

$ax+4=5x+b$

$a =$ ☐
$b =$ ☐</td><td>Equation Editor</td></tr>
<tr><td>Select whether each equation has no solution, one solution, or infinitely many solutions.

<table><tr><th></th><th>No solution</th><th>One solution</th><th>Infinitely many solutions</th></tr><tr><td>3x = 3x + 4</td><td>☐</td><td>☐</td><td>☐</td></tr><tr><td>3x + 4 = 3x + 4</td><td>☐</td><td>☐</td><td>☐</td></tr><tr><td>3x + 4 = 4x + 3</td><td>☐</td><td>☐</td><td>☐</td></tr></table></td><td>Matching Item</td></tr>
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