Solving Linear Equations

The student will justify steps used in simplifying expressions and solving equations and inequalities. Justifications will include the use of concrete objects, pictorial representations, and the properties of real numbers, equality, and inequality.

SOL A.4d

Materials: deck of Equation cards

Groups: 3 or 4 players

Game:

The cards should be shuffled and placed face up on a flat surface. The objective is to match the steps for solving an equation. Students should determine the order of play. On an individual's turn, the student should pick the card with the equation on it and pick a card with the first step in solving the equation. The next player would pick a card that would be the next step in solving the equation. Continue play until the equation is solved. After solving the equation, players pick another equation to be solved and continue.

$\frac{1}{3}x-2=7$	**Subtract 2 from both sides.**
$\frac{4}{5}x-6=14$	**The solution is 25.**
Add 2 to both sides.	**Multiply both sides by 3.**
The solution is 18.	$\frac{2}{3}x+6=18$
The solution is 33.	$11=2+\frac{3}{5}x$
The solution is 15.	**Subtract 5 from both sides.**

The solution is 27.	**Add 6 to both sides.**
The solution is 2.	**Multiply both sides by** $\frac{4}{5}$**.**
Multiply both sides by 2.	$6 = \frac{1}{4}x - 9$
Add 5 to both sides.	$\frac{1}{2}x - 5 = 1$
The solution is 60.	$5 + \frac{10}{11}x = 35$
Multiply both sides by $\frac{11}{10}$**.**	**Multiply both sides by 4.**

Subtract 6 from both sides.	**Add 9 to both sides.**
Subtract 9 from both sides.	$13 = \frac{2}{5}x + 9$
Multiply both sides by $\frac{5}{2}$.	**The solution is 10.**
Multiply both sides by $\frac{5}{3}$.	**Multiply both sides by $\frac{3}{2}$.**
The solution is 7.	**Subtract 11 from both sides.**
6 – 5x = -29	**Multiply both sides by 4.**

The solution is 54.	**Subtract 6 from both sides.**
$\frac{x}{4}+9=6$	**Multiply both sides by 3.**
The solution is –12.	**Subtract 9 from both sides.**
$29=11+\frac{x}{3}$	**Add 7 to both sides.**
The solution is 108.	**Divide both sides by 3.**
Multiply both sides by $\frac{3}{2}$**.**	**Divide both sides by –5.**

The solution is 3.	**The solution is 100.**
Subtract 10 from both sides.	**Divide both sides by 4.**
Divide both sides by 2.	**Multiply both sides by 5.**
The solution is –1.	$60 = \frac{2}{3}x - 12$
Add 17 to both sides.	$\frac{x}{5} - 17 = 3$
The solution is 16.	$8 + 4x = 4$

$42=10+2x$	**Add 12 to both sides.**
$3x-7=2$	**Subtract 8 from both sides.**
$9-14x=8x+6$	**Divide both sides by 3.**
$8x-3=23-5x$	**Subtract 3 from both sides.**
$9x-13=5x+57$	**Divide both sides by 2.**
$6x-8=17+x$	**Add 3 to both sides.**

Subtract 15 from both sides.	**Divide both sides by 4.**
Divide both sides by 12.	**Subtract 3x from both sides.**
Divide both sides by 22.	**Add 4x to both sides.**
Add 14x to both sides.	**Subtract x from both sides.**
Subtract 5x from both sides.	**Add x to both sides.**
Divide both sides by 13.	**Add 13 to both sides.**

Subtract 4x from both sides.	**Subtract 6 from both sides.**
Divide both sides by 6.	**Add 5x to both sides.**
$4x-6=3+7x$	**Add 4 to both sides.**
$4+5x=-x-8$	**Add 8 to both sides.**
$8x+15=-4x+51$	**Subtract 4 from both sides.**
$3x-2=5x-4$	**Divide both sides by 5.**

The solution is 12.	**The solution is 3/22.**
The solution is 35/2	**The solution is 5.**
The solution is -3.	**The solution is -2.**
The solution is 3.	**The solution is 1.**