

Equations Game

- Topic: Solving Two-step Equations
- Grade Level: Algebra 1
- Number of players: 3 – 5 in a group
- Materials needed: One set of “Equation Game” cards for each group

Procedure:

- The cards can be used to play a rummy like game. Shuffle the deck of cards and deal 8 cards to each player. The remaining cards are placed face down as a draw deck.
- When play begins one card from the draw deck is turned face up to start a discard deck.
- The first player can either pick up the discard deck or draw a card from the draw deck.
- After drawing or picking up the discard deck, the player makes any books that he/she wishes and places them face up on the table in front of him/her. If a player picks up the discard pile he/she must make at least one book using a card or cards from the discard pile. A book consists of a two-step equation, the corresponding one-step equation, and the solution. For example: $5 - 2x = 9$, $-2x = 4$, and $x = -2$
- The player then discards a card from his/her hand and play passes to the next player.
- If a player cannot make a book after drawing a card, play passes to the next player.
- Play continues in the same manner until all the books are made. The player with the most books is the winner.

Alternate Game:

- Use only the two-step equation and the solution for the alternate game, i.e., $3x + 4 = 10$ and $x = 2$. This will give you 48 cards.
- Shuffle the altered deck of cards and deal 8 cards to each player. The remaining cards are placed face down as a "Go Fish!" deck.
- Each player makes any books as he/she can and places them face up on the table in front of him/her. A book consists of one card with an equation and one card that has the solution. For example, $2x + 4 = 6$ and $x = 1$.
- To begin play, the first player asks one of the other players, by name, for a solution card, i.e., "Sue, do you have $x = 2$?" If Sue has one of these cards, she must give it to the first player. The first player must make a book using the card and place it on the table. He/she takes another turn. If Sue does not have the card, she tells the first player, "Go fish!" The first player draws a card from the draw deck and play passes to the next player.
- Play continues in the same manner until all of the players are out of cards. The player with the most books is declared the winner.

$3x + 4 = 10$ $10 = 4 + 3x$	$3x = 6$ $6 = 3x$	$x = 2$ $2 = x$
$5 - 2x = 9$ $9 = 5 - 2x$	$-2x = 4$ $4 = -2x$	$x = -2$ $-2 = x$
$3x - 2 = 4$ $4 = 2 - 3x$	$3x = 6$ $6 = 3x$	$x = 2$ $2 = x$

$2x + 3 = -3$ $3 - 3 = -3 + x2$	$2x = -6$ $6 - 6 = x2$	$x = -3$ $3 - 3 = x$
$7 - 2x = 11$ $11 = x2 - 7$	$-2x = 4$ $4 = x2 - 4$	$x = -2$ $2 - 2 = x$
$2x - 4 = 2$ $2x - 4 = 2$	$2x = 6$ $6 = 2x$	$x = 3$ $3 = x$

$2 - 3x = 11$ $11 = 3x - 2$	$-3x = 9$ $6 = 3x -$	$x = -3$ $3 - = x$
$10 - 3x = 1$ $1 = 3x - 10$	$-3x = -9$ $6 - = 3x -$	$x = 3$ $3 = x$
$2x + 4 = 5$ $5 = 4 + 2x$	$2x = 1$ $1 = 2x$	$x = \frac{1}{2}$ $\frac{2}{1} = x$

$2x - 6 = -5$ $5 = 9 - 2x$	$2x = 1$ $1 = 2x$	$x = \frac{1}{2}$ $\frac{2}{1} = x$
$3x + 2 = 4$ $4 = 2 + 3x$	$3x = 2$ $2 = 3x$	$x = \frac{2}{3}$ $\frac{3}{2} = x$
$3x - 1 = 1$ $1 = 1 - 3x$	$3x = 2$ $2 = 3x$	$x = \frac{2}{3}$ $\frac{3}{2} = x$

$4x - 1 = 2$ $2 = 1 - x$	$4x = 3$ $3 = x$	$x = \frac{3}{4}$ $\frac{3}{4} = x$
$4x + 6 = 7$ $1 = 6 + x$	$4x = 1$ $1 = x$	$x = \frac{1}{4}$ $\frac{1}{4} = x$
$2x - 3 = -1$ $1 - 3 = -x$	$2x = 2$ $2 = x$	$x = 1$ $1 = x$

$4 - 3x = 7$ $4 - 3x = 7$	$-3x = 3$ $3 = 3x -$	$x = -1$ $x = -1$
$4 - 2x = 6$ $4 - 2x = 6$	$-2x = 2$ $2 = 2x -$	$x = -1$ $x = -1$
$2x + 4 = 6$ $2x + 4 = 6$	$2x = 2$ $2x = 2$	$x = 1$ $x = 1$

$2x + 1 = 8$ $8 = 1 + 2x$	$2x = 7$ $7 = 2x$	$x = \frac{7}{2}$ $\frac{7}{2} = x$
$4x + 2 = 5$ $5 = 2 + 4x$	$4x = 3$ $3 = 4x$	$x = \frac{3}{4}$ $\frac{3}{4} = x$
$3x + 1 = 8$ $8 = 1 + 3x$	$3x = 7$ $7 = 3x$	$x = \frac{7}{3}$ $\frac{7}{3} = x$

$2x + 5 = 12$ $2x + 5 = 12$	$2x = 7$ $7 = 2x$	$x = \frac{7}{2}$ $\frac{7}{2} = x$
$4 - 2x = 10$ $4 - 2x = 10$	$-2x = 6$ $6 = -2x$	$x = -3$ $x = -3$
$3x - 4 = 3$ $3x - 4 = 3$	$3x = 7$ $3x = 7$	$x = \frac{7}{3}$ $\frac{7}{3} = x$