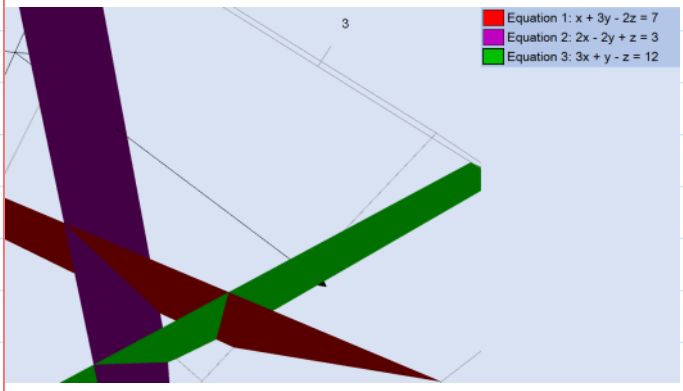
# Systems of Equations - Zero or Infinite Solutions

$x + 3y - 2z = 7$
$2x - 2y + z = 3$
$3x + y - z = 12$

No solution




$x + 3y - 2z = 7$ (1)
$2x - 2y + z = 3$ (2)
$3x + y - z = 12$ (3)

(2) + (3)

$5x - y = 15$

2 × (1)

$4x - 4y + 2z = 6$ (A)

(1) $x + 3y - 2z = 7$ (B)

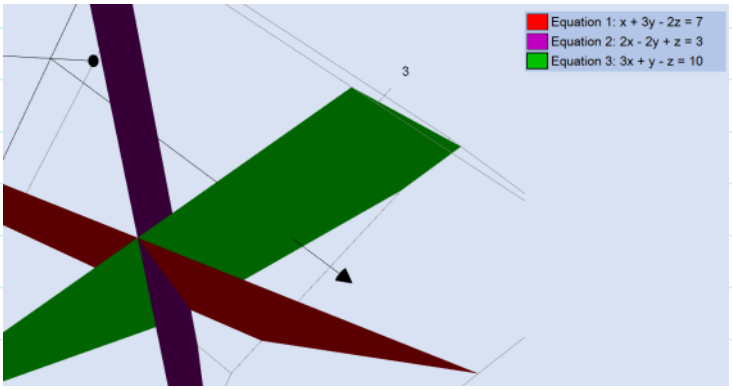
(A) + (B)

$5x - y = 13$

Inconsistent equations
No solution

$x + 3y - 2z = 7$
$2x - 2y + z = 3$
$3x + y - z = 10$

Infinite solutions




$x + 3y - 2z = 7$ (1)
$2x - 2y + z = 3$ (2)
$3x + y - z = 10$ (3)

(2) + (3)

$5x - y = 13$

2 × (2)

$4x - 4y + 2z = 6$ (A)

(1) $x + 3y - 2z = 7$ (B)

(A) + (B)

$5x - y = 13$

Infinite solutions