Algebra 2   3.4
Solve systems of linear equations in 3 variables
Use systems to solve problems

ordered triple
no solution
infinitely many solutions
substitution
elimination
whiteboards

$$0 = 0 \quad \text{inf. many}$$

$$0 = 5 \quad Ns$$

Solve each system of equations

How is this problem different?

1. $-3a - 4b + 2c = 28$
$a + 3b - 4c = -31$
$2a + 3c = 11$

12. $-2x + 15y + z = 44$
$4x + 3y + 3z = 18$
$-3x + 6y - z = 8$

b. $-6a + 9b - 12c = 21$

$-2a + 3b - 4c = 7$

$10a - 15b + 20c = -30$

GuidedPractice

2A. $-4x - 2y - z = 15$
$12x + 6y + 3z = 45$
$2x + 5y + 7z = -29$

2B. $3x + 5y - 2z = 13$
$-5x - 2y - 4z = 20$
$-14x - 17y + 2z = -19$

Writing equations

$x - 20$

$$A + B + L = 19{,}200$$
$$30A + 25B + 20L = 456{,}000$$
$$2A = B$$

$3600 + 7200 + L = 19{,}200$
$10{,}800 + L = 19{,}200$
$L = 8400$

- Seats closest to an amphitheater stage cost $30. The seats in the next section cost $25, and lawn seats are $20. There are twice as many seats in section B as in section A. When all 19,200 seats are sold, the amphitheater makes $456,000.

A system of equations in three variables can be used to determine the number of seats in each section.

$$30A + 25B + 20L = 456{,}000$$
$$-20A - 20B - 20L = -384{,}000$$
$$10A + 5B = 72{,}000$$
$$5(2A)$$

$20 LAWN $\boxed{L}$ 8400

$25 B 7200

3600 A $30

STAGE

$10A + 10A = 72{,}000$
$20A = 72000$
$A = 3600$

B = ball   g = glove   h = hat

price hat
h =

$10B + 3G + 2h = 99$

$4B + 8G + 2h = 78$

$2B + 3G + h = 33.60$