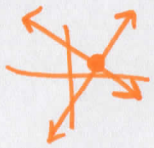
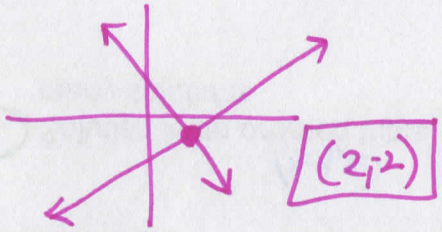
Alg 2

Lesson Title 1.4 Solving 3 Variable Systems Date _____

Review Tasks

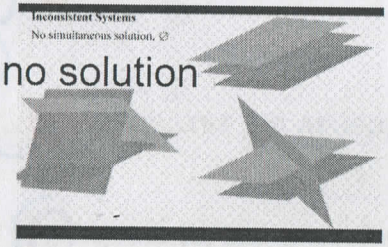
1.  (3,2)

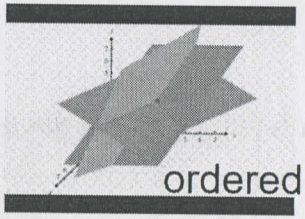
2.  (2,-2)

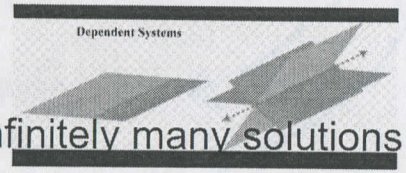
3 Methods Used to Solve a System of Equations

1) Graphing
2) Substitution
3) Elimination

Visual of Three Variable Systems Solutions




ordered triple



Vocabulary

Ordered triple : solution to a 3 variable system (x, y, z)

System of linear equations 2 or more linear equations

Solution to a system point of intersection

Still need help with:

1) $6x + 8y - 6z = 62$
2) $10x - 12y - 14z = 14$
3) $12x - 8y + 20z = -68$

Steps for Solving a Three Variable System

Substitution, elimination

1. Eliminate one variable (2 times) ← same variable twice
2. Eliminate a second variable (1 time)
3. Solve for the third variable
4. Substitute the variable back into an equation from step 2
5. Plug both variables back into an original equation from step 1
6. Solution is an ordered triple, no solution, or infinitely many solutions — (x, y, z) $\varnothing$ ∞

Example

1) $6x + 8y - 6z = 62$
3) $12x - 8y + 20z = -68$
4) $18x + 14z = -6$

2) $10x - 12y - 14z = 14$ (2)
1) $6x + 8y - 6z = 62$ (3)
$20x - 24y - 28z = 28$
$18x + 24y - 18z = 186$
5) $38x - 46z = 214$

4) $18x + 14z = -6$ (46)
5) $38x - 46z = 214$ (14)
$828x + 644z = -276$
$532x - 644z = 2996$
$1360x = 2720$
$x = 2$

4) $18(2) + 14z = -6$
$36 + 14z = -6$
$14z = -42$
$z = -3$

1) $6(2) + 8y - 6(-3) = 62$
$12 + 8y + 18 = 62$
$30 + 8y = 62$
$8y = 32$
$y = 4$

$(2, 4, -3)$