Today's Plan:

Learning Target (standard): I will solve 3x3 linear systems using the elimination method.

Students will: Complete practice problems over previous concepts at the boards, put up homework problems on the board and make necessary corrections to their own work, take notes over new material and complete practice problems over new concepts.

Teacher will: Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of new concepts and assign students assessment problems over new concepts.

Assessment: Board work, homework check and homework assignment

Differentiation: Students will work at the board, go over and correct homework at their seats, actively engage in lecture over new concepts, practice new concepts with the aid of other students and the teacher and complete homework assignment.

p.480 #4-36 (by 4)

$4) independent(1,-1)$

$8) independent(-3,2)$

$12) independent\left(\frac{3}{2},-3\right)$

$16) independent(3,4)$

$20) independent(4,-1)$

$24) independent(0,0)$

$28) independent\left(\frac{1}{4},-\frac{1}{2}\right)$

$32) independent(-2,3)$

$36) independent(10,-5)$

Solve using the elimination method.

$2(3x+6y=7)$
$-3(2x+4y=5)$

$6x+12y=14$
$-6x-12y=-15$
$0=-1$

inconsistent
no solution

Solve using the elimination method.

$-2(3x-y=4)$
$6x-2y=8$

$-6x+2y=-8$
$6x-2y=8$
$0=0$

dependent
infinite solutions

Solve using the elimination method.

$$\left[\frac{3}{4}x+\frac{2}{5}y=-\frac{3}{20}\right]20$$

$$4\left[\frac{3}{2}x-\frac{1}{4}y=\frac{3}{4}\right]$$

$15x+8y=-3$

$8(6x-y=3)$

$15x+8y=-3$

$48x-8y=24$

$63x=21$

$x=\frac{1}{3}$

$6(\frac{1}{3})-y=3$

$2-y=3$

$-y=1$

$y=-1$

independent

$(\frac{1}{3},-1)$

Solve using the elimination method.

$$4x-5y=3y+4$$

$$2x+3y=2x+1$$

$4x-8y=4$

$3y=1$

$y=\frac{1}{3}$

$4x-8(\frac{1}{3})=4$

$4x-\frac{8}{3}=4$

$4x=\frac{20}{3}$

$x=\frac{5}{3}$

independent

$(\frac{5}{3},\frac{1}{3})$

Three Variable Systems:

- the number of variables determines the number of equations needed to solve the system
- the solution is an ordered triple (x, y, z)

3 - Variable Elimination: "Middle Sign Opposite"

- choose one variable to eliminate
  - make all of the coefficients on that variable match, but the middle one should have the opposite sign of the other two
  - add the first two equations together - produces a new equation
  - add the second and third equations together - produces a new equation
- now you have a 2 variable system
  - follow previous instructions

Solve using the elimination method.

$$x+3y+z=6$$
$$3x+y-z=-2$$
$$2x+2y-z=1$$

$-1(2x+2y-z=1)$

$-2x-2y+z=-1$

$+$

$4x+4y=4$

$4(x-y=-3)$

$4x+4y=4$

$4x-4y=-12$

$8x=-8$

$x=-1$

$-1-y=-3$

$-y=-2$

$y=2$

$-1+3(2)+z=6$

$-1+6+z=6$

$5+z=6$

$z=1$

independent

$(-1, 2, 1)$

Solve using the elimination method.

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

$0x+2y+z=7$

$2x+0y-z=3$

$*\ x-y+0z=3$

$+$

$2x+2y=10$

$2(x-y=3)$

$2x+2y=10$

$2x-2y=6$

$4x=16$

$x=4$

$4-y=3$

$-y=-1$

$y=1$

$2(4)-z=3$

$8-z=3$

$-z=-5$

$z=5$

independent

$(4, 1, 5)$

Assignment:

p.481 #40-46 even