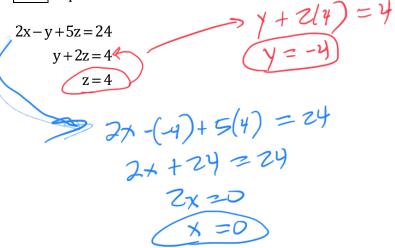
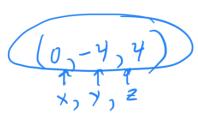
Pre-Calculus CP 1 – Section 7.3 Notes Solving Systems of Equations with THREE unknowns

Name: KEY

Ex 1: Super EASY!





Ex. 2: Moderately more difficult

a)
$$x+y+z=6$$
 $2x-y+z=3$
 $3x-z=0 \rightarrow z=3x$
 $x+y+3x=6$
 $y+y+3x=6$
 $y+y+3x=3$
 $y+3x=3$
 $y+3x=3$

b)
$$6y + 4z = -12$$

 $5x + 3y = 4$
 $3y - 4z = 4$
 $6y + 4z = -1z$
 $+(3y - 4z = 4)$
 $9y = -8$
 $y = -84$
 $5x + 8(-8/3) = 4$
 $5x - 8/3 = 12/3$
 $5x = 20/3$
 $x = 20/3$
 $x = 20/3$
 $x = 20/3$
 $x = 20/3$
 $y = -12$
 $y = -12$

Pre-Calculus CP 1 - Section 7.3 Notes

Solving Systems of Equations with THREE unknowns

Ex. 3: Difficult- lots of steps!

a)
$$2x+4y+z=1$$

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

$$z-y-1-2y-3z=2$$

$$6y+9z=9$$

$$2y = -6$$
 $y = -3$

b)
$$x+2y-7z=-4$$
 $x=-2y+7z=-4$

$$2x + y + z = 13$$

$$2x+y+z=13 \longrightarrow x+3y-12z=-1)$$

$$3x+9y-36z=-33 \longrightarrow x+2y-7z=-4$$

$$2(-2y+7z-4)+y+z=13$$

Application

A small corporation borrowed \$775,000 to expand its clothing line. Some of the money was borrowed at 8%, some at 9%, and some at 10%. How much was borrowed at each rate if the annual interest owed was \$67,500 and the amount borrowed at 8% was four times the amount borrowed at 10%?

0.08x + 0.09y + 0.10z = 67,500

$$x + y + z = 775,000$$

 $x = 4z$
0.08(4z) + 0.09y + 0.10z = 67,500
0.32z + 0.09y + 0.10z = 67,500
0.09y + 0.42z = 67,500
A 9y + 42z = 6,750,000
 $y = 775,000 - 5z$
 $y = 775,000 - 5z$

Homework: p. 527, #1a, 5, 13, 15, 43