Sec 7-3: Solving systems of equations using ELIMINATION

Solving by elimination may involve:

- Just adding or subtracting the two equations
- Multiplying one of the equations by a constant then adding or subtracting.
- Multiplying both equations by a constant then adding or subtracting.

Solve this system of equations using Elmination.

Add the two equations together and you will eliminate the k's

$$4j + 9k = -15$$
$$+\ 7j - 9k = 48$$

$11j = 33$

$j = 3$

$4(3) + 9k = -15$

$12 + 9k = -15$

$-12 \quad -12$

$9k = -27$

$k = -3$

$(3, -3)$

Solve this system of equations using Elmination.

Subtract the equations and you will eliminate the P's.

$$6P - 5Q = 14$$
$$-\ 6P + 2Q = -14$$

$-7Q = 28$

$Q = -4$

$6P + 2(-4) = -14$

$6P - 8 = -14$

$+8 \quad +8$

$6P = -6$

$P = -1$

$(-1, -4)$

Solve this system of equations using Elmination.

Subtract the equations and eliminate the B's

$$8A - 3B = 50$$
$$-\ 5A - 3B = 29$$

$3A = 21$

$A = 7$

$5(7) - 3B = 29$

$35 - 3B = 29$

$-35 \quad -35$

$-3B = -6$

$B = 2$

$(7, 2)$

Solve this system of equations using Elmination.

Multiply the second equation by 5 then add the equations together to eliminate the d's.

$6c + 5d = 9$

$5(4c - d = -7)$

$6c + 5d = 9$

$+\ 20c - 5d = -35$

$\frac{26c}{26} = \frac{-26}{26}$

$c = -1$

$6(-1) + 5d = 9$

$-6 + 5d = 9$

$+6 \quad +6$

$5d = 15 \quad d = 3$

$(-1, 3)$

Solve this system of equations using Elmination.

$9a + 8b = 4$

$-2(3a + 5b = -8)$

$9a + 8b = 4$

$-9a + 15b = -24$

$\frac{-7b}{-7} = \frac{28}{-7}$

$b = -4$

$9a + 8(-4) = 4$

$9a - 32 = 4$

$+32 \quad +32$

$\frac{9a}{9} = \frac{36}{9} \quad a = 4$

$(4, -4)$

Solve this system of equations using Elmination.

You could eliminate the m's by doing this:

$7(2m - 3n = -8)$

$2(7m + 2n = 47)$

$14m - 21n = -56$

$-\ 14m + 4n = 94$

$-25n = -150$

$n = 6$

OR

You could eliminate the n's by doing this:

$2(2m - 3n = -8)$

$3(7m + 2n = 47)$

$4m - 6n = -16$

$+\ 21m + 6n = 141$

$25m = 125$

$m = 5$

$(5, 6)$