Lesson 19 Applications of Linear Systems

System Models: **Elimination Method** **Set both equations up in Standard Form**

Ax + By = C
Dx + Ey = F

Examples: Set up the system of equations and solve the system.

1. Darryl and Ming each improved their yards by planting grass sod and geraniums. They bought their supplies from the same store. Darryl spent \$59 on 5 ft^2 of grass sod and 1 geranium. Ming spent \$89 on 8 ft^2 of grass sod and 1 geranium. Find the cost of one ft^2 of grass sod and the cost of one geranium.

	Darryl	Ming
grass sod	5	8
geraniums	1	1
Total	\$59	\$89

$5s + 1g = 59$ ①
$8s + 1g = 89$ ②

$-5s - 1g = -59$
$8s + 1g = 89$

$\frac{3s}{3} = \frac{30}{3}$

$s = 10$

grass sod = \$10

① $5(10) + 1g = 59$
$50 + 1g = 59$
$-50 \quad -50$

$g = 9$

geranium = \$9

2. The school that Molly goes to is selling tickets to a choral performance. On the first day of ticket sales the school sold 4 adult tickets and 5 child tickets for a total of \$80. The school took in \$88 on the second day by selling 4 adult tickets and 6 child tickets. What is the price of one adult ticket and one child ticket?

	Day 1	Day 2
Adult	4	4
Child	5	6
Total	\$80	\$88

$4A + 5C = 80$ ①
$4A + 6C = 88$ ②

$-4A + 5C = -80$
$4A + 6C = 88$

$C = 8$

① $4A + 5(8) = 80$

$4A + 40 = 80$
$-40 \quad -40$

$\frac{4A}{4} = \frac{40}{4}$

$A = 10$

Child Tickets → \$8
Adult Tickets → \$10