6.1 Day 1 Systems by Graphing

$2d + 3c =$ $\quad d$ = donuts

$3d + 2c =$ $\quad c$ = coffee

Solve by Graphing

Substitution

Linear Combination / Elimination (+ & -)

Elimination w/ Multiplication

To solve by Graphing

1) Graph 1st line

2) Graph 2nd line

3) See where the 2 lines cross (x, y)

4) Check answer in both original equations

Ex) $x - y = 2$ $\quad\quad$ $3y + 2x = 9$

$-x \quad -x$ $\quad\quad$ $\frac{3y}{3} = \frac{-2x + 9}{3}$

$\frac{-y}{-1} = \frac{-x + 2}{-1}$ $\quad\quad$ $y = -\frac{2}{3}x + 3$ ✓

$y = x - 2$

(3, 1)

Check

$3 - 1 = 2$ $\quad\quad$ $3(1) + 2(3) = 9$

$2 = 2$ ✓ $\quad\quad$ $3 + 6 = 9$ ✓

$9 = 9$

6.1 Day 2

Exactly 1 solution = independent & consistent

Infinite # of solutions (R) dependent & consistent
Same line

no solution (∅) = inconsistent
11 lines

Cup. 338, 1-6, 10-15

Cup. 338, 16-23

HW 6.1 SPAP

6.2 Substitution

Ex) $y = 2x + 4 \qquad x = 6$

Substitution (6, 16)

$y = 2(6) + 4 = 12 + 4$

$y = 16$

Ex) $y = (4x - 6)$ $\qquad 5x + 3y = -1$

$5x + 3(4x - 6) = -1$

$5x + 12x - 18 = -1$

$17x - 18 = -1$

$+18 \quad +18$

$\frac{17x}{17} = \frac{17}{17} \qquad x = 1$

$y = 4(1) - 6 = 4 - 6 = -2$ (1, -2)

Ex) $y = (3x + 10)$ $\qquad 2x + 5y = 1$

$2x + 5(3x + 10) = 1$

$2x + 15x + 50 = 1$

$17x + 50 = 1$

$-50 \quad -50$

$17x = -51$

$x = -3$

$y = 3(-3) + 10$

$= -9 + 10 = 1$

(-3, 1)

Ex) $y = 2x + 4 \qquad y = x - 8$

both $y =$

$2x + 4 = x - 8$

$-x \quad -x$

$x + 4 = -8$

$-4 \quad -4$

$x = -12$

$y = 2(-12) + 4$

$= -24 + 4$ or $y = -12 - 8$

$= -20 \qquad y = -20$

(-12, -20)

3=3 R

3=2 Φ

Day1 CD write 6.2 e 1-5

CW 6.2 e 6-10

HW 6.2b 1-16

Day2

CD p. 347 1-5.

CW p. 347, 8-16

HW p347, 17-22

Day3

CW 6.2, SP

HW 6.2P

6.3 Elimination Using Addition & Subtraction

(Linear Combination / Elimination)

$$\begin{array}{r} 2 \\ +\ -2 \\ \hline 0 \end{array} \qquad \begin{array}{r} 2x \\ +\ -2x \\ \hline 0 \end{array}$$

Ex) $x+y=8$ and $x-y=12$

$$\frac{2x=20}{2\ \ 2} \quad x=10$$

$10+y=8$

$-10 \quad -10$

$y=-2$

$(10,-2)$

Ex) $-4y+3y=-3$ and $4x-5y=5$

$$\frac{-2y=2}{-2\ \ -2} \quad y=-1$$

$(0,-1)$

$4x-5(-1)=5$

$4x+5=5$

$4x=0$

$x=0$

CDp. 350 Ex 1 & 2

P. 353 1-4

Cwp. 354 7-18

HW 6.3.a

Day 2

CD p. 354 24-26

Cw Wksht 6.3 SP

HW wksht 6.3P

6.4 Elimination Using Multiplication

Ex) $x+y=6$
$x-y=12$

$9+y=6$
$-9\ \ -9$
$y=-3$ $(9,-3)$

$\frac{2x=18}{2\ \ 2}$ $x=9$

Ex) $2x+y=4 \rightarrow -1$
$x+y=8$

$2x+y=4$
$-x-y=-8$
$x=-4$

$-4+y=8$
$y=12$
$(-4,12)$

Ex) $6x-2y=10 \rightarrow 3$
$3x-7y=-19$

$6x-2y=10$
$-6x+14y=38$
$12y=48$
$\frac{12}{12}\ \ \frac{48}{12}$ $y=4$

$6x-2(4)=10$
$6x-8=10$
$\frac{6x=18}{6\ \ 6}$ $x=3$ $(3,4)$

Ex) $5x-3y=6 \rightarrow 3$
$2x+5y=-10 \rightarrow -5$

$25x-15y=30$
$-10x-25y=50$
$31x=80$
$x=0$

$-3y=6$
$y=-2$
$(0,-2)$

CD p.359 1-6
CW p.360 7-17 odd
HW Wksht 6.4a

Day 2: CD p.360, 8-18 ea
Day 2 CW 6.4 SP
HW 6.4 P

6.5 Word Problems → Regular Day!

Systems → Graphing
Substitution
Linear Combination / Elimination +
Linear Combination / Elimination x

Word Problems

Wksht 6.5 a wp

Don't worry about units². Just see it as units

1)

g = grass sod
s = shrub

$5g + 1s = 38 \xrightarrow{-9}$
$7g + 9s = 76$

$-45g - 9s = -342$
$7g + 9s = 76$
$-38g = -266$ $\quad g = \$7$
$\overline{-38} \quad \overline{-38}$

$5(7) + 1s = 38$
$35 + s = 38$
$-35 \quad -35$
$s = \$3$

\$7 grass sod, \$3 shrub.

2) a = adult (senior citizen) tickets
c = child (student) tickets

$4a + 10c = 70 \rightarrow 4a + 10c = 70$
$11a + 2c = 116 \rightarrow -55a - 10c = -580$

$\frac{-51a}{-51} = \frac{-510}{-51}$ $\quad a = 10$

$4(10) + 10c = 70$

$40 + 10c = 70$

$-40 \quad -40$

$\frac{10c = 30}{10 \quad 10} \quad c = 3$

adult ticket (senior ct)
= $10

child (student) = $3

CW worksht 6.5 evp
3-10
HW worksht 6.5 b wh

6.5 Word Problems Distance Day 2

Rate · Time = Distance

With wind $+w$

Vs wind $-w$ (into the wind)

With current $+c$

Vs current $-c$

	Rate	Time	= distance
1st trip			
2nd trip			

CD w/ sht 6.5c up

1.

	Rate	Time	= Distance
1st trip	$x+w$	10	1080 miles
2nd trip	$x-w$	20	1080 miles

$$\frac{10(x+w)=1080}{10} \qquad \frac{20(x-w)=1080}{20}$$

$$x+w=108 \qquad x-w=54$$

$$x+w=108$$
$$x-w=54$$
$$2x=162$$
$$x=81 \text{ mph}$$

$$81+w=108$$
$$-81 \quad -81$$
$$w=27 \text{ mph}$$

2)

Rate	Time	Distance
$x+w$	6	600
$x-w$	12	600

$\frac{6(x+w)=600}{6}$ $\qquad$ $\frac{12(x-w)=600}{12}$

$x+w=100$ $\qquad$ $x-w=50$

$x+w=100$
$x-w=50$
$2x=150$
$x=75$ mph

$x+w=100$
$75+w=100$
$w=25$ mph

CW went 6.5 c up
2-10

HW went 6.5 d up
1-9

Day 3

6.5 Word Problems — Coins

Coin Problems

How many coins?
How much $?

How much is a nickel worth? 5¢ = .05

dime ? 10¢ = .10

quarter? 25¢ = .25

Live demo!

dimes & pennies

How many coins! 10 coins

$.37

$d + p = 10$

$.10d + .01p = .37 \rightarrow 100$

$10d + 1p = 37 \rightarrow 10d + 1p = 37$

$d + p = 10 \rightarrow -d - p = -10$

$9d = 27$

$\frac{9d}{9} = \frac{27}{9}$

$d = 3$

$d + p = 10$

$3 + p = 10$

$p = 7$

3 dimes

7 pennies

CD wksht 6.5f wp

1) $n + d = 61 \rightarrow n + d = 61$ -5

$.05n + .10d = 4.15$ $\times 100$ $5n + 10d = 415$

$-5n - 5d = -305$

$5n + 100 = 415$

$\frac{5d}{5} = \frac{110}{5}$ $d = 22$

$n + d = 61$

$n + 22 = 61$ 22 dimes + 39 nickels

$n = 39$

2) $.05n + .10d = 2.45 \rightarrow 100.$

$n = 10 + d.$

$5n + 100 = 245$

$n = 10 + d$

$5(10 + d) + 100 = 245$

$50 + 5d + 100 = 245$

$15d + 50 = 245$

$-50 \quad -50$

$15d = 195$

$d = 13.$

13 dimes + 23 nickels $n = 10 + d = 23$

CW wksht 6.5f wp 3-5

HW wksht 6.5e wp

6.5 Applying Systems Day 4

Graphing
Substitution
Linear Combination / Elimination (+ & -)
(X)

CD p. 365 Ex 1
p. 366 Ex 2

CD p. 367 1-4 Day 2
CW p. 367, 6-11 R
HW WS 6.5a

6.6 Systems of Inequalities

Systems of Inequalities

1) Graph 1st line
   dotted - solid
   shade
2) Graph and line
   dotted - solid
   shade
3) Find Answer where the 2 shades cross

CD p. 372 Ex 1
p. 373 Ex 2

CD p. 374 1-8
CWP. 374 10-17
HW 6.6 Sheet