Today's Learning Goal(s): 14a, 14b, 14a

By the end of the class, I will be able to:

a) Solve money problems using substitution or elimination.

You should have already previewed the 3 videos for today's lesson.

You do NOT have to copy the video solutions to your handout.
You need to understand how to write proper "let" statements,
and be able to create 2 equations based on the given information.

http://www.mathwiz.ca/login.php
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14a) $0.2x - 0.3y = 1.3$ ①
$0.5x + 0.2y = 2.3$ ②

10x① $2x - 3y = 13$ ③
10x② $5x + 2y = 23$ ④
2x③ $4x - 6y = 26$ ⑤
3x④ $15x + 6y = 69$ ⑥

$19x = 95$

$x = 5$

Sub in ①
$0.2(5) - 0.3y = 1.3$
$1 - 0.3y = 1.3$
$-0.3y = 1.3 - 1$
$\frac{-0.3y}{-0.3} = \frac{0.3}{-0.3}$
$y = -1$ ∴ (5, -1) is the solution

$10 - 3y = 13$
$-3y = 13 - 10$
$-3y = 3$
$y = -1$

Money Problems

Math/Wiz

Example 1 Going to the Movies

Over the course of the movie you eat 5 food items.
Including the price of the ticket you end up spending $21.25

Your friend eats 8 food items and
with the ticket price spends $26.50.

Determine the ticket price and
the cost per food item.

Let **t** be the ticket price.

Let **c** be the cost per food item.

YOU ❶ $t + 5c = 21.25$

FRIEND ❷ $t + 8c = 26.50$

Example 1 Going to the Movies

YOU ❶ $t + 5c = 21.25 \longrightarrow t = 21.25 - 5c$

FRIEND ❷ $t + 8c = 26.50$

sub ❶ in ❷ to determine c.

$21.25 - 5c + 8c = 26.50$

$21.25 + 3c = 26.50$

$3c = 26.50 - 21.25$

$3c = 5.25$

$c = 5.25/3$

$c = \$1.75$

(cost of food item)

sub "c" in ❶ to determine t.

$t + 5c = 21.25$

$t + 5(1.75) = 21.25$

$t + 8.75 = 21.25$

$t = 21.25 - 8.75$

$t = \$12.50$

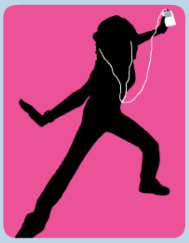
(ticket price)

$\therefore$ the ticket price to see King Kong is $12.50
and the cost of a food item is $1.75.

Money Problems

Example 2 Downloading Music

In **5 months** you download **180 songs** and the total charge comes to **$94.75**.
In **8 months** your friend downloads **248 songs** for a total charge of **$141.60**.
Determine the monthly fee and cost per download at *soundsright.com*



Let **m** be the monthly fee.
Let **d** be the cost per download.

YOU ❶ $5m + 180d = 94.75$

FRIEND ❷ $8m + 248d = 141.60$

Money Problems

Example 2 Downloading Music

YOU ❶ $5m + 180d = 94.75$ **(x 8)** $40m + 1440d = 758.00$

FRIEND ❷ $8m + 248d = 141.60$ **(x 5)** $40m + 1240d = 708.00$

❶ - ❷ $200d = 50.00$

$d = \frac{50.00}{200}$

(per download) **d** = $0.25

sub in ❶ to determine **m**

$5m + 180d = 94.75$

$5m + 180(0.25) = 94.75$

$5m + 45 = 94.75$

$5m = 94.75 - 45$

$5m = 49.75$

$m = 49.75 / 5$

m = $9.95 (per month)

∴ the monthly fee at *soundsright.com* is $9.95 and the cost per song download $0.25.

Money Problems - Investments

Example 3 Two Different GICs

You have $6000 to invest and choose two different G.I.C's to earn interest for your money. One part of the money is invested at 7% /a and the other part at 8% /a . The total interest earned from the two parts at the end of one year is $440.

Determine the amounts that you invest at each interest rate?

		G.I.C A		G.I.C B		Amounts
❶	investment	x	+	y	=	6000
❷	interest	0.07x	+	0.08y	=	440

Money Problems - Investments

Example 3 Two Different GICs

❶ $x + y = 6000 \longrightarrow x = 6000 - y$

❷ $0.07x + 0.08y = 440 \longrightarrow 0.07x + 0.08y = 440$

Sub ❶ into ❷ to solve for y.

$0.07(6000 - y) + 0.08y = 440$

$420 - 0.07y + 0.08y = 440$

$0.01y = 440 - 420$

$0.01y = 20$

$y = 20 / 0.01$

$y = 2000$

Sub y in ❶ to solve for x.

$x + y = 6000$

$x + 2000 = 6000$

$x = 6000 - 2000$

$x = 4000$

$4000 is invested at 7% and $2000 is invested at 8% to earn a total interest of $440 after one year.

TODAY'S Practice:
p. 40 #9,
pp. 46-47 #1, 3, 4, 16

OPTIONAL extra p. 46 #11

Google Classroom: Preview 1 video before tomorrow's class
Bring headphones to tomorrow's class.