

I found the problem with my demo problem. It wasn't any mistake we made in lecture when we realized something was wrong. It was a miscopy, caused by my trying to make the numbers work out nicely for class. *sigh*

Double-click on the paper clip to open corrected exercise.

	Paint	Dry	Polish	
Delta	10	1	2	240
Beta	16	2	3	69
Sigma	8	1	1	28
	240	69	28	

"How many of each type of car were produced?"

$x =$ the # of Deltas produced (# of cars)
 $y =$ Betas } critical
 $z =$ Sigmas }

Make Variables the Columns

$$10x + 1y + 2z = 240$$

Hours of painting



$\frac{1 \text{ hr drying } y \text{ Betas}}{\text{delta}}$

$\frac{\text{hrs paint}}{\text{delta}} \times \text{deltas} = \text{\# of hours painting}$

$\frac{\text{units are (hrs drying) (Betas)}}{\text{Deltas}}$

	Paint	Dry	Polish	
Delta	10	1	2	240
Beta	16	2	3	69
Sigma	8	1	1	28
	240	69	28	

This is sideways!
Make variables columns!

	Delta	Beta	Sigma	TOTAL
Paint	10	16	8	240
Dry	1	2	1	69
Polish	2	3	1	28

Goal: $1x$ _____ $1y$ _____ $1z$ ~
Triangular.

$$\begin{aligned} \text{Dry} & \quad x + 2y + z = 69 \text{ hrs drying} \\ \text{Polish} & \quad 2x + 3y + z = 28 \\ \text{Paint} & \quad 10x + 16y + 8z = 240 \end{aligned}$$

$$\textcircled{1} \quad 1x = \frac{1 \text{ hr drying}}{1 \text{ Delta can}} \times \text{Delta Cans} = x \text{ hours drying}$$

$$\textcircled{2} \quad 2y = \frac{2 \text{ hrs drying}}{1 \text{ Beta can}} \times \text{Beta Cans} = y \text{ hours drying}$$

$x =$ the # of Deltas produced (# of cars)
 $y =$ Betas
 $z =$ Sigmas

Dry $x + 2y + z = 69$
 Polish $2x + 3y + z = 28$
 Paint $10x + 16y + 8z = 240$

$$\begin{array}{r} 69 \\ 2 \\ \hline 138 \end{array}$$

$$R1 \quad x + 2y + z = 69$$

$$R2 \quad y + z = 110$$

$$R3 \quad -4y - 2z = -450$$

$$-2R1 \quad -2x - 4y - 2z = -138$$

$$R2 \quad 2x + 3y + z = 28$$

$$-y - z = -110$$

$$-10R1 \quad -10x - 20y - 10z = -690$$

$$R3 \quad 10x + 16y + 8z = 240$$

$$-4y - 2z = -450$$

$$y + z = 110$$

Bonus - Fix this
 and turn it in,
 Friday

$$4R2 \quad 4y + 4z = 440$$

$$R3 \quad -4y - 2z = -450$$

$$2z = -10 \quad !?$$

Right here, the boy
 finds a mess-up.

Homework #6

1.1

Carlotta has \$10,000 to invest. I recommend that she invest in Treasury bills that yield 6%, Treasury bonds that yield 7%, and corporate bonds that yield 8%. Carlotta wants to have an annual income of \$680 and the amount invested in corporate bonds must be half that invested in Treasury bills. What is the amount of each investment?

$$\begin{aligned}x &= \text{Amt invested in T-Bills (\$)} \\y &= \text{" " " T-Bonds (\$)} \\z &= \text{" " " C-Bonds (\$)}\end{aligned}$$

$$\begin{aligned}\text{Total Invested: } & x + y + z = 10000 \\& .06x + .07y + .08z = 680 \\& z = \frac{1}{2}x\end{aligned}$$

Amt invested in C-Bonds is half Amt in T-Bills.

$$z = \frac{1}{2}x$$

People ALWAYS GET THIS backwards.

$$\frac{1}{2}z = x \text{ is common.}$$

C-Bonds T-Bills

$$\text{If } z = 100, \text{ then } x = 50$$

So is amt invested in C-Bonds half as much as T-Bills?

That's messed-up.

A very good way to see if you got it set up O.K.

Attachments

demo-problem.pdf