

Name: _____

Date: Sept 6

Hour: _____

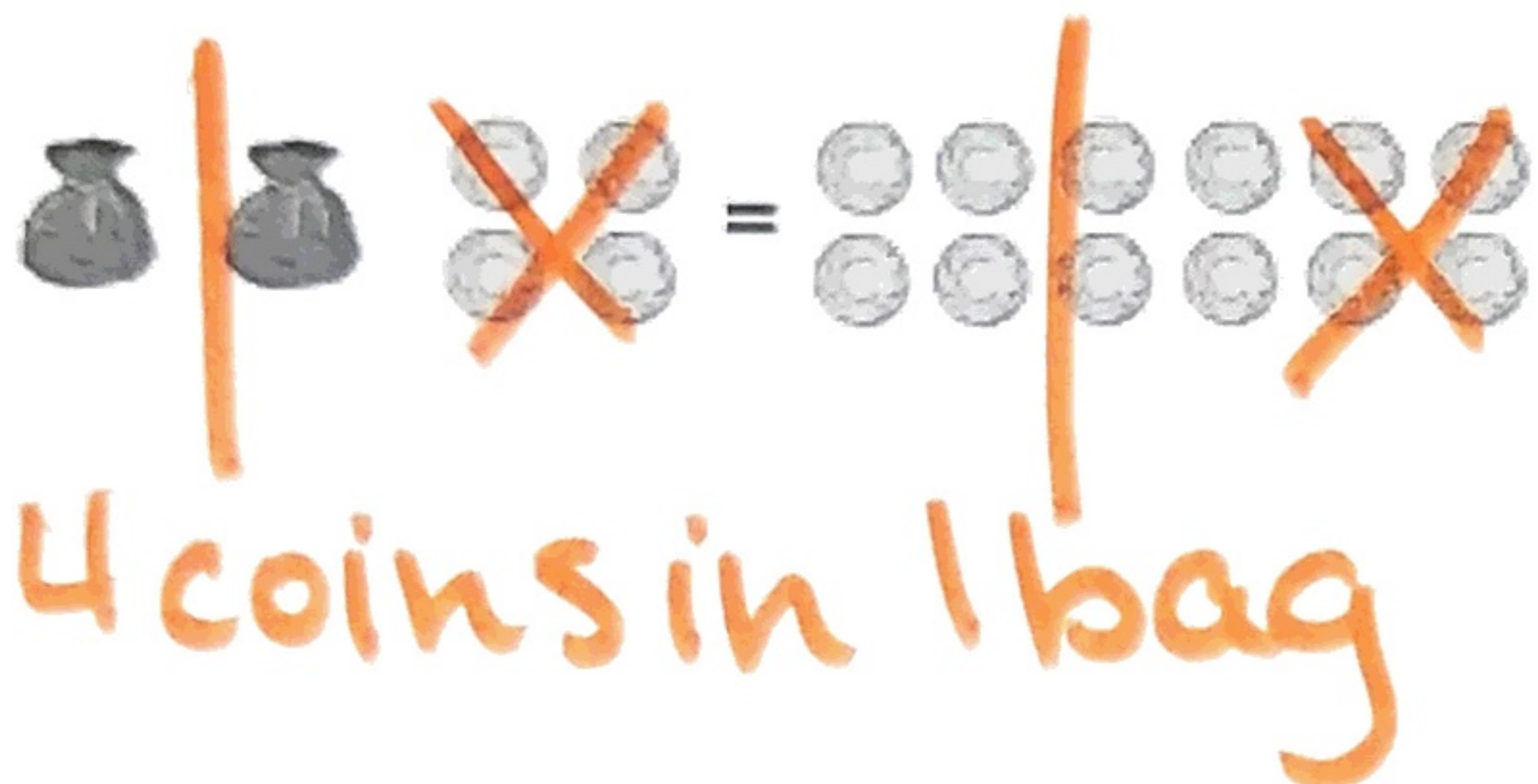
Alg 1

Unit 1B Day 13: Solving 2 Step Equations

Focus Question: In what order do I solve for a variable?

A. Solving 2 step equations with a picture. How many coins are in each pouch?

Picture Problem and Solution



What it looks like algebraically

z is the # of coins in a bag

$$\begin{array}{r}
 2z + 4 = 12 \\
 \underline{-4 \quad -4} \\
 2z = 8 \\
 \underline{\div 2 \quad \div 2} \\
 z = 4
 \end{array}$$

What did you eliminate first?

the constant

What did you eliminate 2nd?

the coefficient

1st we eliminate constants by add or subtract

2nd we eliminate coefficients by multiply or divide

So the order is to r - and then o or ÷ which is the reverse of the order of operations.

GEMDAS to simplify

SADMEG to solve

B. Practice Problems: Solve each equation

$$7 + 9n = 31$$

$$\underline{-7 \quad -7}$$

$$-5 = -6 + \frac{3x}{4}$$

$$\underline{+6 \quad +6}$$

$$-6 = \frac{w}{2} - 10$$

$$\underline{+10 \quad +10}$$

$$\frac{9n}{9} = \frac{24}{9} \div 3$$

$$\frac{4}{3} = \frac{3x}{4} \cdot \frac{4}{3}$$

$$2 \cdot 4 = \frac{w}{2} \cdot 2$$

$$n = \frac{8}{3}$$

$$\frac{4}{3} = x$$

$$8 = w$$

© $9y + 10 = -8$

(D) $1 - 10x = 81$

(L) $31 = 4 - 9y$

$$\underline{-10 \quad -10}$$

$$\frac{9y}{9} = \frac{-18}{9}$$

$$\underline{-1 \quad -1}$$

$$-10x = 80$$

$$\underline{-10 \quad -10}$$

$$\underline{-4 \quad -4}$$

$$27 = -9y$$

$$\underline{-9 \quad -9}$$

$$y = -2$$

$$x = -8$$

$$-3 = y$$

C. Solving Literal equations: Equations with Multiple Variables*

- 1) $P = 2l + 2w$ solve for w 2) $y = 2x - 4$ solve for x 3) $S = \pi r l + \pi r^2$ solve for l

$$\frac{P - 2l}{2} = \frac{2w}{2} \qquad \frac{y + 4}{2} = \frac{2x}{2}$$

$$\frac{P}{2} - \frac{2l}{2} = w \qquad \frac{y}{2} + \frac{4}{2} = x$$

$$w = \frac{P}{2} - l$$

$$x = \frac{y}{2} + 2$$

4. Solve $3x + y = 11$ for x

5. Solve $3x + y = 11$ for y

6. Solve $mx + b = 12$ for x .

*A note on fractions: Show ALL work to simplify $\frac{7^3 - 8}{1 \cdot 3} \Rightarrow \frac{21}{3} - \frac{8}{3} \Rightarrow \frac{21-8}{3} \Rightarrow \frac{13}{3}$

We tend to skip the step of writing

$\frac{21-8}{3}$ but sometimes it is very helpful to remember other ways to see fractions.