LESSON MAKER PRO

Formula Flip Lab

Rewrite equations to make one variable stand alone.

HIGH SCHOOL · A1.A.3.1

A1.A.3.1 "Solve equations involving several variables for one variable in terms of the others."

NAME _____ DATE _____

KEEP IT BALANCED

To solve an equation for a variable, use inverse operations to get that variable alone. Do the same operation to both sides, and keep the other variables in your answer.

WORKED EXAMPLE

Solve 17a + 19b = 23c for b.

1. Subtract 17a from both sides: 19b = 23c - 17a.
2. Divide both sides by 19: b = (23c - 17a)/19.

Answer: b = (23c - 17a)/19

PRACTICE 6 problems

1 Solve y = 4x + 7 for x.

ANSWER _____

2 Solve 3a + 2b = 12 for b.

ANSWER _____

3 Solve I = prt for r. Assume p and t are not zero.

ANSWER _____

4 Solve 5(m - n) = k for m.

ANSWER _____

5 Solve q = (r + s)/6 for s.

ANSWER _____

6 Solve z = (2x + 3y)/5 for y.

ANSWER _____

APPLY IT Show your work

1 A club buys m movie tickets for $9 each and d snacks for $4 each. Its total cost is C dollars, so C = 9m + 4d. Solve for d. Then find d if C = 82 and m = 6.

WORK SPACE

ANSWER _____

2 A video project uses 3 GB for each video clip, 2 GB for each photo collection, and 6 GB for the editing app. If S is the total storage in GB, v is the number of video clips, and p is the number of photo collections, then S = 3v + 2p + 6. Solve for p. Then find p if S = 38 and v = 4.

WORK SPACE

ANSWER _____

CHALLENGE One step up

The variable x appears twice in t = (3x + 2y)/5 - x. Solve for x.

WORK SPACE AND ANSWER

ANSWER KEY

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Solve y = 4x + 7 for x.	**x = (y - 7)/4**
2	Solve 3a + 2b = 12 for b.	**b = (12 - 3a)/2**
3	Solve I = prt for r. Assume p and t are not zero.	**r = I/(pt)**
4	Solve 5(m - n) = k for m.	**m = n + k/5**
5	Solve q = (r + s)/6 for s.	**s = 6q - r**
6	Solve z = (2x + 3y)/5 for y.	**y = (5z - 2x)/3**

PART 2 · APPLY IT

1. **d = (C - 9m)/4; 7 snacks** Subtract 9m from both sides and divide by 4. Substitute C = 82 and m = 6 to get d = (82 - 54)/4 = 7.
2. **p = (S - 3v - 6)/2; 10 photo collections** Subtract 3v and 6 from both sides, then divide by 2. Substitute S = 38 and v = 4 to get p = (38 - 12 - 6)/2 = 10.

CHALLENGE

x = y - 5t/2

Accept algebraically equivalent forms. For the word problems, students should give both an expression and the calculated number.