LESSON MAKER PRO

Formula Focus

Rearrange equations to isolate the quantity you need.

HIGH SCHOOL · HSA-CED.A.4

CCSS.Math.Content.HSA-CED.A.4 "Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law V = IR to highlight resistance R."

NAME _____ DATE _____

ISOLATE THE TARGET

To highlight a quantity, undo operations in reverse order while doing the same operation to both sides. Keep the target variable alone, then simplify the expression if needed.

WORKED EXAMPLE

Rearrange $Q = (k + 13)/8$ to highlight k.

1. Multiply both sides by 8: $8Q = k + 13$
2. Subtract 13 from both sides: $8Q - 13 = k$
3. Write the target first: $k = 8Q - 13$

Answer: k = 8Q - 13

PRACTICE 6 problems

1 Rearrange d = rt to highlight t.

ANSWER _____

2 Rearrange P = 2l + 2w to highlight w.

ANSWER _____

3 Rearrange F = ma to highlight m.

ANSWER _____

4 Rearrange y = (3/5)x - 4 to highlight x.

ANSWER _____

5 Rearrange V = IR to highlight R.

ANSWER _____

6 Rearrange A = (1/2)bh to highlight h.

ANSWER _____

APPLY IT Show your work

1 A streaming plan follows the formula B = 6g + 18, where B is the monthly bill in dollars and g is the number of gigabytes used. First rearrange the formula to highlight g. Then find g when B = 48.

WORK SPACE

ANSWER _____

2 The student council designs a rectangular stage backdrop with perimeter P = 2l + 2w. First rearrange the formula to highlight l. Then find l when P = 54 feet and w = 11 feet.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Rearrange q = (3x - 5)/(x + 2) to highlight x. State one value that q cannot equal.

WORK SPACE AND ANSWER

Formula Focus

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Rearrange d = rt to highlight t.	**t = d/r**
2	Rearrange P = 2l + 2w to highlight w.	**w = (P - 2l)/2**
3	Rearrange F = ma to highlight m.	**m = F/a**
4	Rearrange y = (3/5)x - 4 to highlight x.	**x = 5(y + 4)/3**
5	Rearrange V = IR to highlight R.	**R = V/I**
6	Rearrange A = (1/2)bh to highlight h.	**h = 2A/b**

PART 2 · APPLY IT

1. **g = (B - 18)/6; g = 5** Subtract 18 from both sides, then divide by 6 to get g = (B - 18)/6. Substitute 48 for B to get g = 5.
2. **l = (P - 2w)/2; l = 16 feet** Subtract 2w from both sides, then divide by 2 to get l = (P - 2w)/2. Substitute 54 for P and 11 for w to get l = 16 feet.

CHALLENGE

x = (2q + 5)/(3 - q), where q != 3

Accept algebraically equivalent forms, such as w = P/2 - l. For the challenge, accept x = -(2q + 5)/(q - 3) with the restriction q != 3.