Equivalent Equations and Pan Balances

Lesson 6-10

DATE TIME

Math Message

1 Determine whether the two equations in each set are equivalent.
Be prepared to discuss how you decided whether they are equivalent or not.

Set A	Set B	Set C
$4x + 3x = 21$ $7x = 21$	$3(x + 2) = 7 + x$ $3x + 2 = 7 + x$	$x = 5$ $5x = 25$
Equivalent? _____	Equivalent? _____	Equivalent? _____

2 Start with the original pan-balance equation. Do the first operation on both sides of the pan balance and write the results on the second pan balance.
Complete the third and fourth pan balances in the same way.

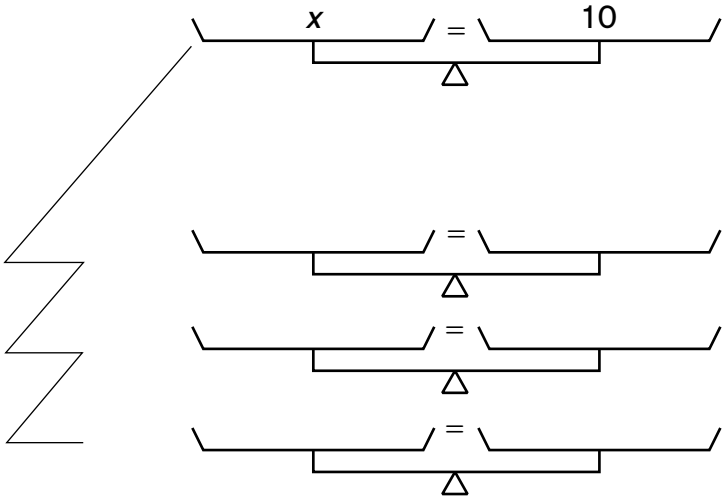
Original pan-balance equation:

Operations (in words)

Multiply by 3.

Add 18.

Add $2x$.



3 Now do the opposite of what you did in Problem 2. In words, record the operation you used to obtain the results on each pan balance.

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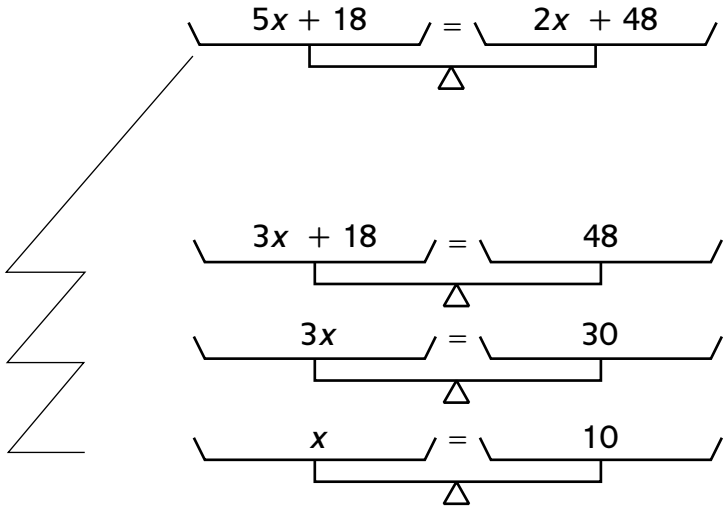
_____



Equivalent Equations and Pan Balances (continued)

Lesson 6-10

DATE TIME

4. Record the results of the operation on each pan, as you did in Problem 2.

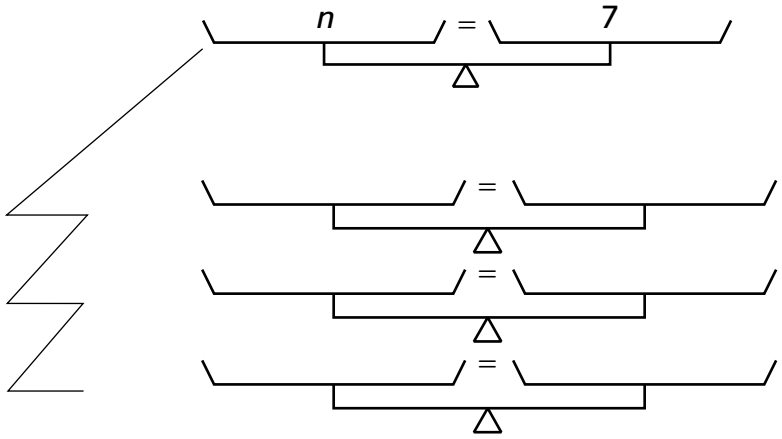
Original pan-balance equation:

Operation (in words)

Subtract 2.

Multiply by 4.

Add 2n.



5. Check that 7 is a solution to each pan-balance equation in Problem 4.

6. Record the operation that was used to obtain the results on each pan balance, as you did in Problem 3.

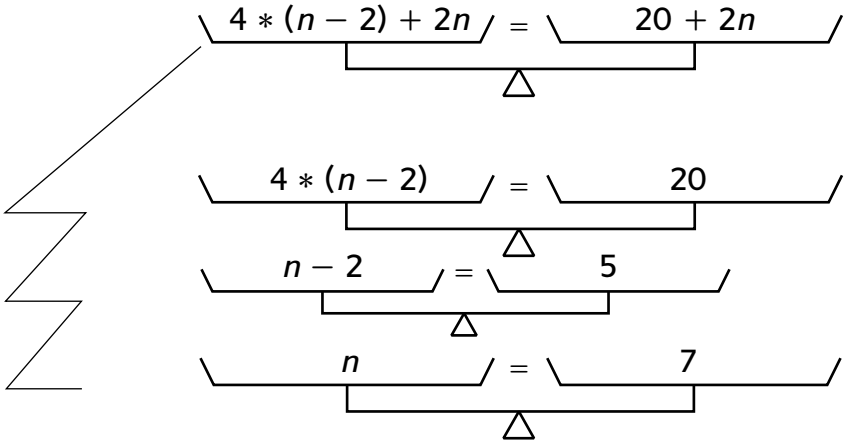
Original pan-balance equation:

Operation (in words)

_____

_____

_____



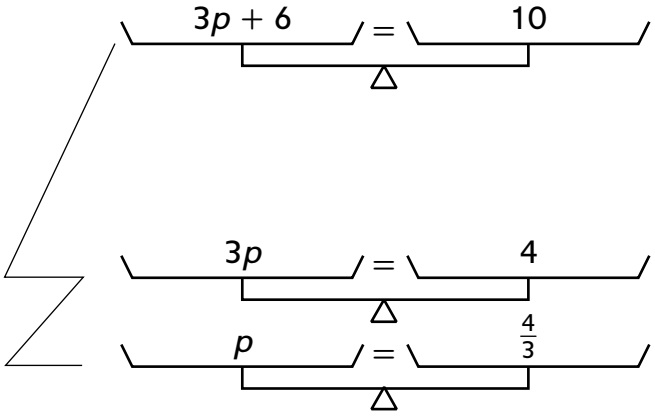
7. Check that 7 is a solution to each pan-balance equation in Problem 6.

8. Original equation:

Operation (in words)

_____

_____



9. Check that $\frac{4}{3}$ is a solution.