

Assignment: T2-28 Algebraic Proofs

Name the property of each statement.

1. If $8 = 4x$, then $4x = 8$. _____
2. If $2x + 4 = 6$, then $2x = 2$. _____
3. If $10 = 2y$ and $2y = x$, then $10 = x$. _____
4. If $2(3x + 2) = 10$, then $6x + 4 = 10$. _____
5. If $20x = 100$, then $x = 5$. _____
6. If $x - 30 = 90$, then $x = 120$. _____

Solve each algebraic proof. Make sure to justify each step

7. Given: $4x + 8 = 44$
 Prove: $x = 9$

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8. Given: $4x + 5 + 3x = -16$
 Prove: $x = -3$

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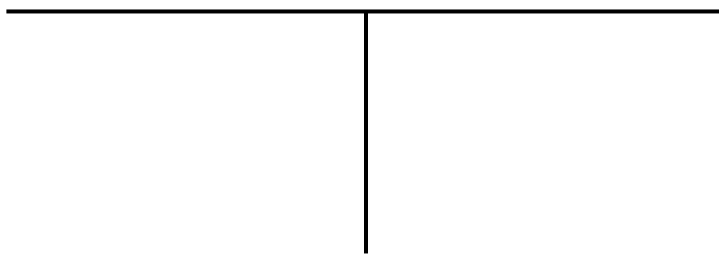
9. Given: $.6x + 1.2 = .2x - 4.8$
 Prove: $x = -15$

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10. Given: $\frac{3}{4}x - \frac{5}{2} = 5$
 Prove: $x = 10$

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11. Given: $4x - 3(2x - 6) = 54$
 Prove: $x = -18$



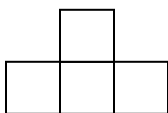
Challenge:

12. Use the pattern of blocks below to answer the questions.

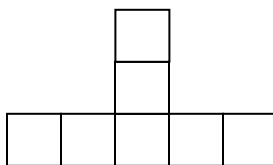
N = 1



N = 2



N = 3



Term Number	1	2	3	4	5	N
Number of Blocks						

Mike observes the pattern and comes up with the expression $1 + 3(n - 1)$ to find the number of blocks. How does each piece of the expression show up in the pattern?

Jenny also observes the pattern and comes up with the expression $3n - 2$ to find the number of blocks. How does each piece of the expression show up in the pattern?

Are the algebraic expressions different or the same? Explain.

Find the number of blocks in the 8th term.

13. Are the equations the same? Find each solution. Show your work.

$$\frac{2(x+4)}{3} = 12$$

$$\frac{2x+4}{3} = 12$$

$$2\left(\frac{x}{3} + 4\right) = 12$$